

UNIT – ONE

INTRODUCTION

1.1 Background of the Study

Education is the foundation of the society. Therefore, Education must be provided to each and every citizen of a country for the betterment of the individual as well as for the overall development of the society. Education is a dynamic force in the life of every individual influencing his physical, mental, emotional, social and ethical development.

Agrawal, added the importance of spreading education to all strata of human beings as follows "Every one has right to Education; Education should be free at least in the elementary and the functional stages. It signifies that education is for all and not for a selected few. This concept accepts that Education is the birth right of every child. This means all children belong to the rich and the poor, living in towns as well as rural areas and in places which are accessible with difficulty have to be provided with facilities for elementary education".

Education is not fulfilled without mathematics. Mathematics is the way to settle in the mind by a habit of reasoning and it is an expression of human mind that reflects the active will, the complete reasons and desire for aesthetic perfection. Mathematics is interpreted, explained and used in different ways or situations of human life. It helps to generate logical, intuition, constructivism, analysis, formulation, generalization and judgment power.

According to the new dictionary of the English language, Funk and Wagnall, (2000), "Mathematics is the science that treats of quantity or magnitude and of their measurement especially by the use of symbols that investigate deductively the

spatial serial and existing between objectives of perception in wider sense, the group of applied science concerned with the concrete application of such data." Actually mathematics is the study of quantity, structure, space and change. It developed with abstraction and logical reasoning from counting calculation measurement and the study of shape and motion of the physical objects. A body of related course concerned with knowledge of measurement properties and relation of quantities including theoretical or applied studies of arithmetic algebra, geometry, trigonometry statistics and calculus. It is the study of patterns of structure, change and space and figures and numbers.

Mathematics is an important subject which is inseparable discipline of human life because it is useful for each and every human activity. Mathematics has direct impact for the development of physical and social science it is the base of scientific development of modern technology and very useful tool in commercial and industrial field. All scientific discoveries depend upon the mathematics because mathematics is the backbone of studying science and it supports the concentration of related study. Mathematics provides techniques in charts, diagrams, graphs, geometrical figures technical drawing and so on.

According to Eves (1983) in the ancient period, Mathematics has originated in certain areas of ancient orient primarily as a practical science to assist in agriculture and engineering pursuits. In the Seventeenth century science of dynamic field of pure Geometry, Modern analytical Geometry and modern number theory of Probability was founded.

Benjamin Pierce one of the best of the American trained Mathematician states that Mathematics is the science that draws necessary conclusion. The further development of the science of Mathematics is a creation of Human mind, Concerned chiefly with ideas, processes and techniques of reasoning. It is also a way of thinking and way of organizing a logical proof. As a way of reasoning

Mathematics gives us insight in to the power of human mind and because challenge to intellectual university (Bell, 1945).

In the beginning it was thought that mathematics and mathematics education are same. Now a day's mathematics and Mathematics education have the separate objectives and process in the academic field . In other words, by nature they are considered as the two distinct disciplines. The mathematics involved in developing theory and wanted to abstract it to other disciplines and fields. But the mathematics education involved with the appropriate methods, materials and presentation in every field of living beings. It also deals mathematics from the philosophical aspect, psychological aspect and sociological aspect of education. The first International Congress of Mathematical Education held in Lyons in August 1969, established Mathematic education as a discipline. Mathematics education in a contemporary society is relative to the intervention of science and technology in to it along with socio-political situation of the society. Therefore, mathematics education tries to answer the more valuable questions such as: what is the value of mathematics in the total education of individual? What type of relevance exists between mathematics and human life? What mathematics should be taught for our school children? How can it be learned by them conformably? In the ancient period "Gurukul" was the educational system in Nepal. There was no special training program. The Vedic term "Gurus" for teacher were given the worthy social prestige and recognition as "Guru Bharna, Guru Bishnu, Guru Deve Maheswor." During this period there were no formal education system. Students served teacher and his family. The Guru imparted the instruction orally and students were trained to listen to the Gurus words attentively. The teachers were considered to be enlightened. In this era, little mathematical knowledge involved in the topic "Astronomy". The "Gurukul" educational system continued after Vedic period. Some Sanskrit scholars opened Sanskrit schools in more populated area to teach Sanskrit and astronomy as mathematics. In Nepal, mathematics has been assigned with a proper place

ever since the vedic period. But formal teaching of mathematics started only after the establishment of Darbar High School in 1853 AD by Jung Bahadur Rana. Since the drawn of democracy in 1951 AD mathematics has been as a compulsory subject in schools.

With the implementation of "Nepal National Educational Planning Commission (NNEPC1954)". A special emphasis was given to arithmetic to tackle domestic accounts. In 1971, the National education system plan (NESP) Mathematics was made compulsory at all the levels of school education. One hundred full marks were allocated for secondary school mathematics which was twenty percent of whole subject of teaching workload. The 30 percent and 12 percent of school hours were given to mathematics at primary and secondary levels respectively. The devanagari numeral system was widely used system used as a national standards and mathematics is given special emphasis at each level of school out of total time for instruction in the school.

The History of Mathematics Education in Nepal

Mathematics came into the existence with the existence of human beings in the world. As plato says, the language of nature is understood through the mathematics. Without mathematics, the world can not be even imagined. So, the history of mathematics goes back to the stone age of human beings.

The informal education system in Nepal was started in "Vedic Period" from 1200 BC to 1000 BC. During that period four Vedas like Riga, Sama, Yajur and other were taught which were composed by the Hindus. At that time, 'Righveda' would treat mathematics and "Gurukul" was the educational system of Vedic era. During this period they studied Ganita for mathematics consisting of Jyotisa for Astronomy kalpasutra for different groups of science and Ksetra Ganita for Geometry. But in Nepal, after many years later, the formal and organized modern education system was started.

Mathematics has been given a priority in school level curriculum around the world including Nepal. In Nepal, the history of mathematics shows that mathematics in its modern sense was influenced by India and British Education system, although mathematics was taught during the Vedic era. The formal education of Nepal was started from Durbar school in Ashwin 27, 1910 B.S. established by Janga Bahadur Rana. Before the establishment of Durbar school mathematics had not been any particular formal curriculum, but there might have so many mathematics practitioners. We saw those mathematical features were used in many aspects of human behaviors and also social function. There was not any specific course at national level in both ancient and medieval period. During the Rana period after the establishment of Durbar school, mathematics had taught in school followed by Indian curriculum prescribed by the Colonial British Government. This school was at first opened especially for royal family only. At that time, Basic Arithmetic at lower level, Algebra and Geometry at upper level were taught

According to historical records, it was started in 1853 A.D by establishing the British type of school. "Gol Baithak" the place of Thapathali for only families of Rana Janga Bahadur by appointing European and Indian teachers. During that period the school introduced some subjects including Mathematics. After few years, similar type of lower secondary school was established in place of "Hunuman Dhoka " for royal families and including subject like Mathematics, literature writing and also other books. After death of Janga Bhadur " Gol Baithak " school transferred into present Darbar Higher School and it was opened for the study of other Ranas' family also. Then the curriculum was designed in favor of Calcutta University. Later Rana prime minister opened to free study for public also in 1901 AD and free distribution of teaching and learning materials for them. After the establishment of SLC Board in 1934 A.D, the secondary level course was systematized at first including 8 subject with 800 full marks. There included 100 marks of compulsory mathematics and 100 marks of optional mathematics also.

During this period, basic education of vocational training was started in 1947AD. This program gave important place of mathematics curriculum. This curriculum of lower secondary level was designed but in its true sense regular basis of mathematics education was started only after the dawn of democracy in 1951 AD and college of education was also established in 1956 AD. It played an important role to bring improvement in mathematics teaching. The teacher, educator workshop revised the course to study and method of teaching mathematics at the primary level in 1961 AD. In 1963AD mathematics course was again revised in order to make relevant to the school mathematics program and its implements in our country in 1964AD.

The higher education of mathematics in Nepal was started from Trichandra College. At that time, there were two faculties namely Humanities and Social Sciences and Science and technology in which mathematics was included at intermediate or pre-bachelor level. A mathematics class at bachelor level was started in 1932 AD (Humanities) and 1942 AD (Science) respectively at the same college.

In our country there were comments that subjects including mathematics of school were not taught meaningfully and systematically before the rise of democracy in 2007 B.S. There were few schools and curriculum was not made. The books written by foreign writers were taught optionally. After the rise of democracy the number of school increased rapidly. In the initial years various publishers came into being and played an active role to remove the shortage of textbooks. By 2028, books were first printed and then used as text books after being approved by the government. The establishment of the college of education in 2013 BS, creation and publication of textbooks were taken in hand in 2014 BS since the settings up of TU steps had to be taken to produce text books for higher education. The Nepal National Education Planning Commission was established in 1914 AD to create an education system. The plan proposed by the NNEPC was to "advise a uniform pattern of education for

the country." It had included mathematics education as an important subject. The All Round National Education Committee (ARNEC) developed a second education plan (2018). The conclusion of the plan was " There is lack of education opportunities for all section of the people and the prevailing education system was completely unrelated to the objectives of the national development plan" (Sharma, 1982).

The national Education system plan (NESP 1971-76) 2028 B.S. as well as other education commission has realized that a well grounded understanding in mathematics is essential in every life as well as for higher studies in the field of science and technology. So the NESP started about the need and important of mathematics in school curriculum as: " A well ground understanding of mathematics is essential for every day life as well as for higher studies in the field of science and technology. Mathematics like language is a basic of communication, involve the frequent use of mathematical concept".

A NESP (2028 B.S.) gave a new model to the education system of the country. This plan determined the national wise, level wise, class wise and subject wise objectives. In order to achieve the goals, text books in Nepali Language, teachers guide, teachings materials etc were prepared. Similarly, Curriculum Implementation Plan 2038 B.S. improved curriculum of 2028 B.S. as well as text books.

Significant changes in the field of education have taken place in Nepal with introduction of multiparty democracy in 2047 B.S. The National Education Commission (2049) recommended that the school curriculum should be revised in the context of recent political change and needs of the context of recent political change and needs of the context of recent political change and need of the society to meet the demands of the modern time. Several other programmes such as teacher training, training of the school Headmaster and formative researcher for the improvement of the education system have been conducted.

As per the recommendations of NESP Mathematics was given the significant place in the school curriculum of Nepal ,out of the total time for instruction of the school 30% was allotted for Mathematics in the primary level, 20% was allotted in the lower secondary level and 12% was allotted for the lower secondary level. Pass mark of Mathematics was determined 32% of the total value of Mathematics. After the reformation in curriculum as suggested by National Education Commission 2049B.S. 18% time was allotted for mathematics in the primary level 15% in the lower secondary level and 12% in the secondary level.

Almost all research findings have shown that we could not identify a unique determinate of students achievement but it is widely accepted that there may be many factors that are related to mathematics achievement. Some factors of variables such as students gender, age, parents education, status of parents, Location of school, prior knowledge, motivation, home environment, teachers' academic qualification, teachers' teaching experience, availability of learning materials medium of instruction, class size socio- economic of community absence or irregularity of teachers, attitudes toward mathematics etc. that effects mathematics achievement .

Brief Introduction of Gurung People

The **Gurung people**, also called **Tamu**, are an ethnic group that migrated from Mongolia in the 6th century to the central region of Nepal. Gurungs, like other east Asian featured peoples of Nepal such as Sherpa, Tamang, Thakali, Magar, Manaaggi, Mustaaggi, and Walunggi, are the indigenous people of Nepal's mountain valleys. Their ancestors practiced Bön (shamanism), later converting to Tibetan Buddhism. They live primarily in north west Nepal in Gandaki zone, specifically Lamjung, Kaski, Mustang, Dolpa, Tanahu, Gorkha, Parbat and Syangja districts as well as the Manang district around the Annapurna mountain range. Some live in the Baglung, Okhaldhunga and Taplejung

districts and Machhapuchhre as well. Small numbers are believed to be living in India's West Bengal and Sikkim, as well as Bhutan.

There are 543,571 Gurungs in Nepal (2.39% of the Nepali population) of which 338,925 speak the Gurung language, a member of the Tibetan languages. Their ancestors, culture and traditions are traced back to Tibet. Though Tibet is called "Bhot" in the Nepali language, however the word "Botay" is considered derogatory to refer to Asian featured Nepalis. Gurungs coexist well with other ethnic groups of Nepal such as Madhesi and Khas, Hindu Indo-Aryan groups who have migrated to Nepal since the 12th century and brought with them the Hindu caste system. Most Gurungs and other indigenous Nepalese are Buddhist, and are thus not bound by the Hindu caste system.

The total population of kaski districts according to national census 2058B.S. is 380527 among this 69038 is the Gurung population which is 18.14% of total population of Kaski district. The total population of Gurung in city area is 100367 which is 3.11% of total population . Similarly populatiion of mountain region is 45,123 which is the 3% population of mountain region. The total population of hilly reason is 3,91,077 which is the 3.88% population of hilly region, population of terai region is 1,07,371 which is 0.96% population of Terai . Population of village area is 443204 which is 2.27% of total population.

History

According to the Tamu Pye, the Gurung account of their own history, the very beginning of civilization began at least eight or nine thousand years ago. The Pye recounts the origin of human beings and the materials and tools they used. Tamu priests still use some of these primitive utensils in their rituals. The Pye seems to have remained substantially the same over time.

The Pye records the ancestors of the Tamu, their *Aji-khe*, or *Khe-ku*, nine male ancestors; *Aji-ma*, or *Ma-i*, seven female ancestors; and *Aba Kara Klye*,

including spiritual masters, lords, and ghosts. Tamu Pye tell how the first people lived in Cho Nasa (or Tso Nasa, Tibetan for "Nasa Lake"), a lakeside village, where they planted the first grain, barley. Then they spread to other locales such as Sa Nasa, Dwo Nasa, Si Nasa and Kro Nasa. Kro Nasa is described as being in the south, with hot and fertile climes. The northern Cho Nasa was later rich in religious activity, its inhabitants speaking Tamu-Kwyi. Other Tamu villages were influenced according to their proximity to these two northern and southern villages. The Pye contains stories about the discovery of fire and the making of the first drum among many others.

There are many possibilities for the original location of the ancestral Tamu. The ancestors of the Tamu – the Ma-i and Khe-ku seem to have represented seven lakes (female Ma-i) and nine mountain peaks (male Khe-ku). There is a traditional assumption that Cho Nasa, as described in the Pye-ta Lhu-ta, refers to a place in western Tibet, and was ringed by seven lakes and surrounded by three mountain ranges. To the south, in Xinjiang in Western China, north of Tibet, in the Turfan Depression, lay Kro Nasa. As the Tamu migrated from one site to another, they would call the new site by an old name as if it were similar in some aspect (Cf. New York). According to the Tamu Pye, the soul of the dead is believed to go first to Koko-limar-tso, which is under water. In the Qinghai region of China lies a huge lake with an island in the middle called Koko Nor (or Ching Hai). It is similar to Hara Usa Nuur (one of the seven lakes) of western Mongolia, and some near-by places have names which end in "chow", conceivably derived from the Cho Nasa of almost six or seven thousand years ago, described in Tamu Pye. Similarly Sa Nasa, Two Nasa, Si Nasa and Kro Nasa could be placed in the Qinghai, Gansu, Sichuan and Yunnan regions of China respectively, running southward to Tibet and then Nepal.

This research was conducted in the 1950A.D. when most Gurungs were still living in their ancient villages with their culture and traditions were well

preserved. Today, many Gurungs have urbanized or moved abroad. Gurungs nowadays struggle to preserve their language and culture. While Pignede's research can serve as a source of knowledge, its validity is controversial.

Music

The Gurung have a rich tradition of music and culture. The Gurung have established the system of Rodhi which is a little similar to modern discothèques, where young people meet and share their views in music and dancing. They have their own music and dancing history. Some musical dances such as Ghatu and Chudka are still in existence. In many Gurung villages they are still performing these types of musical dances, which are performed either solo or in a groups. Gurung films have been produced which promote these musical dances.

Occupations

Though only about half a million in number, the Gurung people have made distinct and immense contributions to history and culture and have demonstrated an unwavering commitment to world peace and progress. At present, the majority of Gurungs live in Nepal, where they form one of the many ethnic groups in the country. In Nepal, Gurungs have and continue to play significant roles in all spheres of the country's development. Outside Nepal, many Gurungs, some in their renowned role as Gurkha soldiers, have lived and been exposed to diverse world cultures in areas as different as Bhutan, Europe, Hong-Kong, India, Japan, Korea, and the United States of America. In Nepal, Gurungs can be divided into two categories, highlanders and lowlanders (though Gurungs are predominantly highlanders). Highlanders living on the slopes of Himalayas still rely heavily on a pastoral and agricultural way of life. They grow rice, wheat, maize, millet and potatoes, normally on terraced mountain slopes. They also derive subsistence from sheep breeding for meat and wool, using fierce mastiffs as sheepdogs.

Many Gurung families, however, have another important source of income — the pensions and salaries of family members who are in the army. Among them are the legendary fighters of the British Gurkha Regiment, who were honored with Victoria Crosses for their bravery. Indeed Gurungs are renowned for their role as Gurkha soldiers, making unparalleled contributions in far flung places such as Europe during World Wars I and II, Burma, Malaysia, the Falklands, Africa, and India. Most recently, Gurungs have participated and continue to participate in most United Nations peacekeeping missions throughout the world.

Despite many pushes and pulls of modern day life, Gurungs are increasingly eager to learn, preserve, and celebrate their distinct cultural heritage and practices. This includes not only the various belief systems and cultural practices surrounding festivals, birth, marriage, and death rituals, but also the Gurungs' own language Tamu Kwei, generally considered a Tibeto-Burman dialect. This focus on Gurung culture continues to provide invaluable insights and inspiration toward the future.

In an ever more interdependent world, Gurungs face the challenge of balancing the preservation of their unique cultural heritage with adaptation to the demands of modern life. The majority of Gurungs still struggle for basic opportunities to improve their livelihoods. As in the past, Gurungs need to invest in opportunities that build on their well-known attributes as people who are hard working, trustworthy, adaptable, and quick-learners in meeting the challenges of modern life in Nepal and beyond its boundaries. Gurungs seek support and guidance from individuals, institutions, and governments. As of 2001AD, the literacy rate among Gurungs was 59.79%.

Gurkha recruitment

Shri Lil Bahadur Gurung was the first Gorkha to become Director of Music, Military School of Music, Pachmarhi (Madhya Pradesh) of the Indian Army.

He has composed a lot of martial music for the Indian Army. He is the first Indian to get LTCL ie Licentiate diploma in band conducting from Trinity College of Music, London. Presently he is settled down in Jabalpur, India and enjoying his retired life.

Havildar Bhanbhagta Gurung VC (September 1921 – 1 March 2008) (also known as Bhanbhakta Gurung) was a Nepalese recipient of the Victoria Cross, the highest and most prestigious award for gallantry in the face of the enemy that can be awarded to British and Commonwealth forces, awarded for his actions while serving as a rifleman with the 3rd Battalion of the 2nd Gurkha Rifles in Burma during the Second World War.

Lachhiman Gurung, VC (born 30 December 1917) is a Nepalese recipient of the Victoria Cross, the highest and most prestigious award for gallantry in the face of the enemy that can be awarded to British and Commonwealth forces.

Omendra Gurung is the first Police Community Support Officer in the UK. He is from Nazare (Samrong) village of Lamjung West Nepal.

Lifestyle

Their traditional occupation was based on sheep herding, trans-Himalayan trade and farming. In the 19th and early 20th century, many Gurung were recruited to serve in the British and Indian Gurkha regiments. Today, the Singapore Police, Brunei reserve units and the French Foreign Legion incorporate ethnically Gurung members. While serving in the British Army they have earned more than 6 Victoria Cross awards. Gurungs are not only restricted to military occupations, many live in urban areas and are employed in all types of labor, business and professional services..

A noted Gurung tradition is the institution of *Rodhi* where teenagers form fictive kinship bonds and become Rodhi members to socialize, perform communal tasks, and find marriage partners. But the institution is rarely in

existence because of its notoriety in the community. 'Rodhi' literally means weaving and making of baskets.

Generally speaking, the Gurungs are divided into two castes (Jaat in the local tongue); Chaar and the Sohra. Within the Chaar jaat there exists further subdivisions: namely, Ghale, Ghotane, Lama and Lamichhaney. Their cultural norms and values are greatly influenced by the Tibetans. Tibetan priests perform all rituals, and Chaar caste members are mainly Buddhists. Gurungs are very homogenous in society, whereby a Gurung is typically married to another Gurung people. A male who belongs to the Chaar jaat is entitled to marry any Gurung women however, a male who belongs to the Sohra jaat (16 caste) would find himself limited to find only the Sohra jaat bride. This practice has existed for a long time without contention and to this day, this practice is still very ubiquitous, though less heightened.

The Sohra jaat contains 16 castes, however there exist more than 50 further subdivisions, named by their occupations. Their tradition mainly relies on the Pye-taa Lhu-taa. They have their own priests, *ghyabrey* (or *klihbri*) and *pachyu* (or *panju*) who perform traditional Gurung Dharma rituals.

Despite Nepali's being a South-Asian, Gurung people bears similar physical traits like Chinese, Mongoloid or Tibetans. Typically, a Gurung person have dark-brown almond eyes, double eye-lids, dark hair, high cheekbones, full lips, small jawline, light skin, and a fairly elevated nose-bridge.

A study has noted that a Gurkha mercenary in Singapore or Great Britain would typically support up to five relatives from home, despite already having to support their immediate family members. The foreign remittance of the Gurkha's pension fund as well as disposable income has benefited Nepal's Economy to some extent.

Religion

Centuries of cultural influence from Tibet and its northern neighbours – which adopted the Tibetan culture to a heavy extent resulted in many Gurungs gradually embracing Tibetan Buddhism—particularly among Gurungs in the Manang region – over the centuries, particularly the Nyingma school. Gurungs generally believe in Buddha and bodhisattvas. Adherents also call upon Buddhist lamas to perform infant purification, seasonal agricultural, and funerary rites, as well as house blessing ceremonies. According to the 2001 AD Nepal Census, 69.03% of the ethnic Gurung were Buddhists, 28.75% were Hindus and 0.66% were Christians. Gurungs practice a form of Tibetan Buddhism heavily influenced by pre-Buddhist Tibetan religion (Bön). Characteristics of this influence include non-Buddhist belief in local deities and in an afterlife in the Land of Ancestors. Other traditional Gurung beliefs include spirit possession, supernatural forest creatures, shapeless wraiths, and spirits of humans that died violently, which populate locales. Gurung villages have their own local deities.

Gurung Dharma describes the traditional shamanistic religion of the Gurung people of Nepal. This religion shares aspects of the Tibetan Bön religion, and is often referred to as "Bön," however there exist significant distinctions between Gurung Dharma and Bön proper. Contemporary shamanistic rituals of Gurung Dharma such as blood offering rituals and ancestor and nature worship are no longer practiced by Tibetan Bönpa. Priestly practitioners of Gurung Dharma include lamas, *klihbri*, and *panju*. Shamanistic elements among the Gurungs remain strong and most Gurungs often embrace Buddhist and Bön rituals in all communal activities. Gurung Dharma in its purest form is now virtually extinct, however the religion is preserved to a large extent in Gurung traditions. Gurung is one important cast of Nepali Society. There is large amount of failure and drop rate of Gurung students in Kaski district. So, it becomes essential to investigate the attitude of Gurung students before giving admission to any special branch of the study. This might help to decrease the problem of

the increasing number of failures of Gurung students in mathematics in secondary level. This study aim to minimize these problems faced by Gurung students, society and nation.

1.2 Statement of the Problem

The problem of the study is mainly concerned with the attitudes of Gurung students towards mathematics. In the present context of Nepal, Gurung students have trend to join in the army as well as work in other countries. So, the problems of drop out of the Gurung students are increased. The researcher tries to find out attitude and achievement of Gurung students towards mathematics in secondary level. This study helped to know the answer of the following questions.

-) What is the attitude of Gurung students towards mathematics in secondary level?
-) What are the attitude and achievement score of Gurung students in mathematics in secondary level?
-) What is the relationship between attitude and achievement of students in mathematics?

1.3 Objectives of the Study

The study included to accomplish the following objectives:

-) To find the attitude of Gurung students towards mathematics in secondary level.
-) To compare attitude and achievement of Gurung students in mathematics in secondary level.
-) To determine the relationship between attitude and achievement of Gurung students towards mathematics in secondary level .

1.4 Statement of Hypothesis

1.4.1 Research Hypothesis

The following research hypothesis is formulated for the study.

-) There is no significance differences between mean scores on attitude and achievement of Gurung students in mathematics in secondary level.
-) There is no correlation coefficient between attitudes score and achievement score of Gurung students in mathematics at secondary level

1.4.2 Statistical Hypothesis

A. comparison study between attitude score and achievement score:

$$H_0 : \bar{X}_1 = \bar{X}_2 \text{ (Null Hypothesis)}$$

$$H_1 : \bar{X}_1 \neq \bar{X}_2 \text{ (Alternative Hypothesis)}$$

Where, \bar{X}_1 X Mean score of students on attitude in mathematics in secondary level.

\bar{X}_2 X Mean score of students on achievement in mathematics in secondary level.

B. Determining the relationship between attitude score and achievement score:

$H_0 : \rho = 0$ (Where ρ is correlation coefficient between attitude score and achievement score of Gurung students in Kaski District)

$H_1 : \rho \neq 0$ (Where ρ is correlation coefficient between attitude score and achievement score of Gurung students in Kaski District)

1.5 Significance of the Study

There are number of questions which need to be answered at this stage. Why should the mathematics in secondary level be taught to every body? Why is the mathematics in secondary level important in daily life in school curriculum? It would be seen that mathematics in secondary level learning helps students to

understanding and interpret the importance quantitative aspects of living. This is all possible, if the students towards mathematics in secondary level could be favourable for the sake of the better life, every one should study and gain better achievement in mathematics in secondary level.

Gurung is one important cast of Nepali Society. There is large amount of failure and drop rate of Gurung students in Kaski district. So, it becomes essential to investigate the attitude of Gurung students before giving admission to any special branch of the study. This might help to decrease the problem of the increasing number of failures of Gurung students in mathematics in secondary level. This study aims to minimize these problems faced by Gurung students, society and nation.

Researcher focused this study on Gurung students to know their attitude for their achievement under the research topic A study on "Attitude of Gurung students towards mathematics in secondary level and its relationship with their achievement". The main significance of this study were as follows:

-) This study would help to identify the attitude of Gurung students towards mathematics in secondary level.
-) This study would provide the information for the mathematics in secondary level teacher and parents about the effect of attitude on achievement in mathematics in secondary level of Gurung students and to give appropriate suggestion.
-) This study would provide information about educational status of Gurung students of Kaski districts.
-) This study would determine the relationship between attitude towards mathematics in secondary level and achievement in mathematics in secondary level.
-) This study also would help to know the effect of individual difference in mathematics in secondary level achievement of Gurung. The ethnicity, Socioeconomic background, lack of educational awareness, culture,

location of school, language, home environment and other educational factors are the main factors for individual learning and mathematics in secondary level achievement at 21 century .

1.6 Delimitation of the Study

The study was limited under the following criteria.

- i) The study was limited in Kaski district where most of the Gurung people are located.
- ii) Government and Boarding schools of Kaski district was chosen.
- iii) Only the Gurung Students was selected in this study
- iv) This study was limited in the Secondary level of kaski districts. Student's socio-economic, cultural and family background and their relations affect to some extent the student's achievement. In this study those external variables are not controlled.

1.7 Definition of the Terms

- i) **Students:** In this study students refer to those Gurung students who are reading in class 9 and 10 of Kaski district in the session 2067 B.S.
- ii) **Achievement:** In the study students achievement means the score obtained by the students on the test which prepared by the teacher in the exam 2067 B.S.
- iii) **Attitude:** In the study attitude means the tendency and interest of Gurung students towards mathematics who are reading in class 9 and 10 of Kaski district in the session 2067 B.S.
- iv) **Secondary level:** Secondary level refers class 9 and 10 Which are running according to Government criteria.
- v) **School:** In this study school are those schools which are running by Government criteria where is the Gurung students' majority.

UNIT – TWO

REVIEW OF RELATED LITERATURE

Reviewing and studying process help in taking adequate feedback to broad the information base inputs to this work. A summary of the writing of recognized authorities and previous researcher provide many opportunities to the researcher to be familiar with what is already known and what is still unknown and untested. Reviews of the previous studies save the researcher to eliminate the duplication of what has been done and provide useful hypothesis and helpful suggestion for the study. Therefore, the review section of the research report will play vital role for the study.

The major purpose of the present study finds the attitude of Gurung students towards mathematics and to study if there exists any relationship between their attitude towards mathematics and their achievement in it. In the course of writing the thesis, the researcher reviews and study different literature which are as follows.

Pandit (1980) studied "The attitude of Secondary School Students and their parents towards mathematics and other subjects instruction". The purpose of the study are to find

-) The attitude of students towards mathematics and other areas of instruction.
-) If sex determines attitude of students towards the study of mathematics.
-) If a student attitude towards mathematics over the grades.

An attitude scale developed and standardized by G. Leivene is adopted as instrument to generate the data for the study. Two hundred and ten students were asked to rank each of the subject English, Mathematics, Science and Social Studies on each of nine attitude statements. A four point scale was used

to convert the rank into numerical values measuring thus the attitudes of the population on an interval scale.

Statistical analysis of the data thus generated revealed that the students ranked mathematics. That means measures of the attitude of boys towards mathematics as a School subject was significantly greater than that of girls and no grade wise varieties in subjects attitudes towards mathematics could be deducted.

Pandit (1999) did thesis on the topic, "A study of attitude of secondary school students and teacher towards geometry". In that research, researcher get following findings.

-) The positive attitude of secondary students was found towards geometry.
-) Teacher had negative attitude towards geometry.
-) The boys students have better attitude than girls students towards geometry.
-) It is found that the mean attitude score of students was significantly greater than that of their teacher.

Ghimire (2001) did research on "A study on the relationship between attitude and achievement in the topic set". The study was found that the students studying on both type of school [Public and Private] was similar attitude and then was no gender different in attitude towards the unit of set. The study also revealed that no significant co-relation existed between students attitude score and achievement score of ninth grade student on the set.

Tiwari (2002) did a research on "A study of attitude of farmer and non-farmer parents towards the school mathematics" and found that farmer and non-farmer parents have positive attitude emphasized their children towards the school mathematics than the farmer priority towards their male child than their female child.

Panta (2004) studied on "Attitude of Secondary level Students and teacher towards geometric transformation". She had been selected 25 mathematics teacher and 260 students from 72 secondary school in Chitwan district and she conclude that:

-) There was positive attitude of Secondary level students and mathematics teacher.
-) Through the mathematics teacher had positive attitude towards geometric transformation, there should be conducted refresher training programmer in this topic.
-) There was no gender wise difference in attitude among students.
-) Both boys and girls had significantly better attitude than teachers towards in this subject.

Baral (2005) did research on the topic "attitude of orphan student towards mathematics and it's relationship with their achievement" he had found that the following facts.

-) Orphan students have positive attitude towards mathematics.
-) The mean attitude score of orphan boys was 80.48 and their S.D was 12.70 similarly mean attitude score of orphan girls was 88.66 and their S.D was 11.17. He found that there is significant difference between orphan boys and girls students attitude towards mathematics.
-) He found that orphan boys achievement status is better than orphan girls in lower secondary level compulsory maths.
-) There was significant relationship between orphan student's attitude towards mathematics and achievement in this subject.

Acharya (2006) did research on the topic "A study of attitude of Secondary School students towards mathematics and it's relationship with their achievements in mathematics". He had analyzed the obtained data with the various statistical method such as mean, standard deviation, co-relation

coefficient, t-test etc. All differences are tested at 0.05 level of significance.

From the data analysis his findings are following:

-) The students studying in both types of school had similar attitude towards mathematics.
-) The grade-wise difference in students attitude towards mathematics could be detected.
-) The mean measure of the attitude of boys towards mathematics was significantly higher than that of girls.
-) The coefficient of correlation between attitude and achievement of Secondary School students measure of attitude towards mathematics were significant.

Banstola (2010) in his thesis entitled "A study of attitudes of Jalari students and their teachers attitudes towards mathematics at lower secondary school in Kaski districts" has concluded that the Jalari students studying at lower secondary level had positive attitude towards mathematics.

To come to the conclusion of this the thesis was focused on the objectives to determine the attitudes of Jalari students and compare the boys and girls attitudes towards mathematics at Lower secondary level. Moreover in the thesis, Bastola had found the relationship between attitudes and achievement of Jalari students with their teacher's attitudes towards mathematics. To achieve the objectives 30 Jalari students (15 boys and 15 girls) were selected from four schools of Kaski district .

The thesis findings were on the basis of analysis and interpretation such as the questionnaire developed by Rai shamserman on his master thesis (2004) in which 34 statements were consisted with six different aspects of mathematics. The different ststistical tools mean, percentage, standard deviation two – tailed t-test and correlation coefficient were used and he concluded that:

1. There were the positive attitudes of Jalari students towards mathematics

2. There was no significant difference between mean score of attitudes of boys and girl of Jalary students towards mathematics.
3. There was no significant relationship between Jalari students attitudes and their achievement towards mathematics.
4. The attitude score of Jalary boys was greater than the mean attitudes score of Jalari girls towards mathematics.

After all above mentioned studies reported that the attitudes of students and teachers towards mathematics comparative studies of attitudes of boys and girls students and instructional materials and factors involved in teaching learning activities.

Karkee (2010) in her thesis entitled "A study of attitude of students of sainik Aawasiya Mahavidyalayas towards mathematics and it's relation with their achievement" has concluded that the sainik Aawasiya mahavidyalaya's students have the positive attitude towards mathematics. They believed that mathematics teaching helped them to develop an orderly, logical, and analytical way of thinking. They are confidence in mathematics and it is very good field for creative people to enter in to Mathematics .Mathematics is helpful to solve the problem of daily life. Mathematics has played a very important role in building up modern civilization of society.

In her thesis the researcher selected 100 sainik Aawasiya mahavidylaya's students (76 boys and 24 girls) from four schools where sainik Aawasiya mahavidylaya's students are studying. The obtained data from questionnaire were analyzed by using percentage, mean, standard deviation, two-tailed t-test and correlation coefficient under the following headings.

1. SAM student's attitudes toward mathematics.
2. Comparison of SAM boy's and girl's attitudes towards mathematics.
3. Comparison of SAM boy's and SAM girl's achievement in mathematics.

4. Relationship between SAM student's attitudes toward mathematics and achievement in that subject.

In the conclusion on the basis of the analysis and interpretation of data gathered from four sainik Aawasiya Mahavidalayas, the researcher has drawn different conclusions about students attitudes towards mathematics and it's relationship with their achievement at lower secondary level. The researcher used the questionnaire developed by George Levine (1971 A D) to fulfill defined objectives of the study. There were 32 statements with comprised four aspects of mathematics. The main conclusions which were formed are given bellows:

1. SAM students have the positive attitudes towards mathematics at lower secondary level.
2. There is significant difference between SAM boys and girls student's attitudes towards mathematics at lower secondary level.
3. There is no significant difference in mathematics achievement between SAM boys and girls at lower secondary level.
4. There is no relationship between SAM student's attitudes and achievements in mathematics at lower secondary level.

Above mentioned reviewed literatures cover the attitude of orphan students, parents attitude, teachers attitudes towards mathematics Sainik Aawasiya Mahavidylaya's student's attitudes and achievements towards mathematics, Jalari students and their teachers attitudes towards mathematics or particular topic of mathematics. But the study on Gurung students attitude towards mathematics and their achievements in mathematics has not been conducted in Nepal yet. So, this study will make an attempt to find attitude of Gurung students towards mathematics in secondary level and to find the relationship between attitude of Gurung students towards mathematics in secondary level and their achievement in mathematics.

UNIT – THREE

METHODOLOGY

The methodology presents the design of the study and entire procedure. This chapter includes design of the study, population of the study, sample of the study, tools for data collection, reliability and validity of tools, data collection procedure and data analysis procedure.

3.1 Design of the Study

The study was designed mainly on investigation the attitude of Gurung students towards mathematics in secondary level and it's relationship with their achievement at Secondary level in Kaski district. The study is quantitative as well as descriptive nature to fulfillment of the objectives.

3.2 Population of the Study

All the Gurung students studying at school of Kaski district on Secondary level were the population of the study. Basically the researcher was focused on the Gurung communities and their children who were studying on Secondary level of Kaski district. So, all Gurung students of Kaski district were the population of the study.

3.3 Sample of the Study

For this study the researcher had selected eight schools of Kaski district by using stratified random sampling. On this study, the researcher had taken the sample schools from four election region of Kaski district. Two schools were selected from each election region by simple random sampling method. From election region first, second, third, and fourth 58, 100, 27, 67 students were

selected respectively from sampled schools by simple random sampling method . Altogether, there were $58+100+27+67 = 252$ sample Gurung students who were reading in class 9 and 10 . The name and address of sample schools and selected number of Gurung students are shown in **Appendix –A**.

3.4 Tools for Data Collection

The primary data of this study was questionnaire. The questionnaire was based on George Levine (1971AD) to identify Gurung students attitude towards mathematics in secondary level. The questionnaire consists 32 statement and each statement consists five option such as "Strongly Agree" "Agree", "Undecided", "Disagree", and "Strongly Disagree". The questionnaire are shown in **Appendix –B**. The set of questionnaires consists in four areas of Gurung students' characteristics . The four areas are in following.

- i) Views about mathematics teaching
- ii) Attitudes towards mathematics as a process
- iii) Attitude about difficulty of learning mathematics
- iv) Attitude towards the place of mathematics in society.

The statements of questionnaire have positive sense and negative sense. About positive and negative statements of questionnaire in four areas are shown in **Appendix-C**. The researcher needs another data which is achievement score of respective sample students from sample schools. The secondary data was collected from respective schools from annual exam results of 2067 B.S. The achievement score of all 252 students are shown in **Appendix-D**.

3.5 Reliability and Validity of Tools

George Levine questionnaire is self reliable and validity. So researcher did not do any reliability test and validity test in this study.

3.6 Data Collection Procedure

For the primary data, the researcher visited the selected schools and took the permission for the research work from schools' administration. After that for the primary data, the researcher met Gurung students of class 9 and 10 and mathematics teacher and discussed about research and questionnaire. To get real views of Gurung students, the researcher promised to secrete the responses. After that the researcher distributed the questionnaire to the students and collected the response of students. For the secondary data the researcher had got the annual exam results report 2067 B.S. of the sampled students from the administration.

3.7 Data Analysis Procedure

- a. Researcher had taken three different objectives. To analysis the data, researcher used the following procedure. The scores of each questions of questionnaire has been given by using likert scale provided that 5,4,3,2,1 for positive questions and 1,2,3,4,5 for negative questions. The attitudes scores of Gurung students are calculated by using likert points and then percentage of attitudes of students was calculated in each question using following formula:

$$\text{Percentage of students Attitudes} = \frac{\text{number of respondents}}{\text{total number of respondents}} | 100\%$$

The attitudes scores and their percentage are shown in **Appindix-E**

- b. Attitude and achievement of Gurung students compared by using t-test .T-test is used to find significant difference between mean scores of attitude and achievement of Gurung students in mathematics in secondary level. Attitude scores of students are converted in 100. Because, achievement score of students were got in 100. The following Mean, standard deviation, combined polled variance and t-test are used to analyze the data:

$$\text{Mean } \bar{X} = \frac{\sum fX}{N}$$

$$\text{Standard Deviation (S.D.)} = \sqrt{\frac{\sum fX^2 - \frac{(\sum fX)^2}{N}}{N}}$$

$$S_p^2 = \frac{f_1 n_1 A_1^2 + f_2 n_2 A_2^2}{n_1 + n_2}$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}, \text{ with degree of freedom } n_1 + n_2 - 2$$

Where, \bar{X}_1 = Mean of first Sample

\bar{X}_2 = Mean of second Sample

n_1 = number of items in first sample.

n_2 = number of items in second sample

s_1^2 = Variance of first sample

s_2^2 = Variance of second sample.

The level of significance of the research studied at 5% with $[= n_1 + n_2 - 2$ degree of freedom. Where n_1 and n_2 are the number of respondents in the attitudes score and achievement score.

c. Researcher has taken attitude score (X) and achievement score (Y) of all

sample students. By using $r = \frac{N\phi XY - \phi X \cdot \phi Y}{\sqrt{N\phi X^2 - (\phi X)^2} \sqrt{N\phi Y^2 - (\phi Y)^2}}$

formula correlation coefficient was calculated. Then researcher finds relationship between attitude and achievement of Gurung students towards mathematics in secondary level. Also researcher tested the correlation coefficient at the 0.05 level of significance between attitude score and achievement score with $n-2$ degree of freedom. He used the

formula, $t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$ to determine relationship between attitude score

and achievement score.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

The most important part of the study is to analyze the collected data. This chapter deals with the statistical analysis and interpretation of the data obtained from the source of the sample students in attitude score and annual exam report. This section is exclusively devoted from objective of the study. The data was analyzed by descriptive way and statistical way to full fill the objectives of the study. There were 32 statements taking four areas to find students attitudes like views about teaching mathematics, attitude towards mathematics as process, attitudes about difficulty of learning mathematics and attitudes the place of mathematics in society. The annual examination result 2067 of mathematics was taken from each sample schools to find the achievement score of Gurung students.

This chapter has been divided into following section to present the analysis interpretation systematically.

- 1) Mean scores of Gurung students attitudes' towards mathematics in Kaski district
- 2) Comparison of attitude and achievement of Gurung students in Kaski district.
- 3) Relationship between Gurung students attitudes' and their achievement in mathematics in secondary level.

4.1 Gurung Students' Attitudes towards Mathematics:

The Gurung students' attitudes towards mathematics were analyzed and interpreted by using percentage. Since they were divided into four areas which were described as follows:

4.1.1 Analysis and Interpretation of views about mathematics teaching:

Table No 1

SN	SA	%	A	%	U	%	D	%	SD	%
1	5	1.98	13	5.16	4	1.59	74	29.37	156	61.90
2	150	59.52	87	34.52	9	3.57	2	0.79	4	1.59
3	7	2.78	20	7.94	28	11.11	115	45.63	82	32.54
4	133	52.78	81	32.14	12	4.76	13	5.16	13	5.16
5	50	19.84	86	34.13	65	25.79	34	13.49	17	6.75
6	132	52.38	101	40.08	13	5.16	2	0.79	4	1.59
7	124	49.21	111	44.05	11	4.37	3	1.19	3	1.19
8	47	18.65	128	50.79	37	14.68	34	13.49	6	2.38
9	27	10.71	65	25.79	82	32.54	46	18.25	32	12.70
Total	675	267.86	692	274.60	261	103.57	323	128.17	317	125.79

- 1) For Statement no. 1: 61.90% students are not strongly agree of this statement 29.37% students are disagree of this statement. So it is substantial that their mathematics teacher likes to pupils to ask questions after has given an explanation.
- 2) For Statement no. 2: 59.52% students are strongly agree of this statement 34.52% students are agree with in statement. So It is proved that their mathematics teacher show them different ways of solving the same problem.
- 3) For statement no. 3 : 45.63% students are disagree with this statement. 32.54% students are not strongly disagree with this statement. 11.11% students are neutral, 7.94% Students are agree and 2.78% students are strongly agree on this statement. More student supports this statement. So their mathematics teacher does not want pupils to solve problem only by the procedures he teaches.
- 4) For Statement No. 4: 52.78% students are strongly agree, 32.14% students are agree. 5.16% are strongly disagree, 5.16% are disagree and 4.76% students are natural. Many students are fevour of this questions. So it can be said that their mathematics teacher expects them to learn

how to solve problems by themselves but helps when they have difficulties.

- 5) For Statement Ngo. 5 : 34.13% Students are agree, 25.79% are neutral, 19.84% students are strongly agree, 13.49% students are not like this statement and 6.75% student are strongly disagree. There are few students against this statement. So this results indicates positive view of mathematics teaching.
- 6) For statement No. 6: 52.38% students are strongly agree with this statement. 40.08% students are agree, 5.16% are neutral, 1.59 are strongly disagree and 0.79 are disagree with this statement. Most of the student are positive attitude on this statement so it can be strongly said that Gurung students attitude is positive on the mathematics teacher.
- 7) For statement no. 7: 49.21% students are strongly agree with this statement. 44.05% statements are agree, 4.37% are confusion, 1.19% are disagree and 1.19% are strongly disagree. So it can be said that most of the students are favour with this statements. This results proof that the Gurung students' altitudes is positive to their mathematics teacher.
- 8) For statement No. 8: 50.79% students are agree with this statement. 18.65% students are strongly agree with this statement. But 14.68% are in confusion, 13.49%are disagree, and 2.38% are not strongly favour. So more students viewed is positive towards mathematics course requires more thinking about the methods of solving problems than memorization of rules and formula.
- 9) For statement 9: 32.54% students are in confusion, 25.79% students are agree, 18.25% are disagree, 12.70 are strongly disagree and 10.71% students are strongly agree. Here more students are confusion.

4.1.2 Analysis and interpretation of Attitudes towards mathematics as a process:

Table No 2

10	103	40.87	96	38.10	17	6.75	19	7.54	17	6.75
11	66	26.19	133	52.78	32	12.70	16	6.35	5	1.98
12	84	33.33	103	40.87	44	17.46	17	6.75	4	1.59
13	59	23.41	67	26.59	111	44.05	10	3.97	5	1.98
14	128	50.79	94	37.30	15	5.95	12	4.76	3	1.19
15	83	33.20	80	31.75	45	17.86	24	9.52	20	7.94
16	28	11.11	40	15.87	155	61.51	17	6.75	12	4.76
17	137	54.37	81	32.14	9	3.57	13	5.16	12	4.76
Total	688	273.28	694	275.40	428	169.84	128	50.79	78	30.95

- 10) For statement 10: 40.87% students are strongly, 38.10% students are agree, 7.54% students are disagree, 6.75% students are confusion and 6.75 % students are strongly disagree with this statement. So few percent students are favour with this statement so most of the students have shown substantial attitude towards the rules of mathematics to follow in solving problems.
- 11) For statement 11: 52.78% students are agree with this statement, 26.19% students are strongly agree with this statement , But 12.70% are confusion, 6.35% disagree and 1.98% student are strongly disagree. So this result proved that most important resin for studying mathematics is to deal our own financial affairs. So, it is high attitude towards this statement.
- 12) For the statement 12%: 40.87% students are agree. 33.33% students are strongly agree with this statement. But 17.46% are confusion, 6.75% are disagree, 1.59% strongly agree. Most of the students are favour with this statement. This result showed their affirmative attitude towards the statement which is substantial.
- 13) For the statement 13: 44.05 % students are confusion, 26.59% students are favour, 23.41% are strongly favour, 3.97% are disagree and 1.98% students are strongly disagree on this statement. This results shows that

many students are confusion so students are not clear on this statement. It is moderate towards the statement.

- 14) For the statement 14: 50.79% students are strongly favour with this statement 37.30% students are favour with this statement. 5.95% are confusion, 4.76% are also disagree and 1.19% students are strongly not favour on this statement very few percent students are not favour with this statement which clearly proves that more number of students suggesting for creative people to enter in the field of mathematics.
- 15) For statement 15: 33.20% students are strongly agree with this statement, 31.75% students are agree with this statement, 17.86% students are confusion, 9.52 % are disagree and 7.94% students are strongly disagree on this statement. This is the moderate attitude towards the statement.
- 16) For statement 16: 61.51% students show confusion towards the statement.
- 17) For the statement 17: 54.37% students are strongly agree with this statement. 32.14% students are agree with this statement. 5.16% are disagree, 4.76% are strongly disagree and 3.57 % students are confusion. So this result proved that more students are favour with this statement.

4.1.3 Analysis and interpretation of Attitudes about difficulty of learning mathematics

Table No 3

18	67	26.59	78	30.95	36	14.29	36	14.29	35	13.89
19	9	3.57	47	18.65	44	17.46	75	29.76	77	30.56
20	102	40.48	109	43.25	20	7.94	16	6.35	5	1.98
21	49	19.44	123	48.81	45	17.86	28	11.11	7	2.78
22	48	19.05	128	50.79	54	21.43	14	5.56	8	3.17
23	99	39.29	104	41.27	17	6.75	23	9.13	9	3.57
24	16	6.35	25	9.92	33	13.10	98	38.89	80	31.75
Total	390	154.76	614	243.65	249	98.81	290	115.08	221	87.70

- 18) For the statement 18: 30.95% students are favour with this statement 26.59% students are strongly favour on this statement. But 14.29% students are disagree, 13.89% are strongly disagree and 14.29% students are in confusion with this statement.
- 19) For the statement 19: 30.56% students are strongly disagree, 29.76% students are disagree, 18.65% students are agree, 17.46 are confusion, 3.57% students are strongly agree with this statement. More students are against with this statement. So it is positive attitude on this statement.
- 20) For the statement 20: 43.25% students are agree with this statement. 40.48% students are strongly agree, 7.94% are confusion, 6.35% are disagree 1.98% strongly disagree. This result showed that few students are favour on this statement. So it can be said that almost any one can learn mathematics. It she or he is willing to study it.
- 21) For the statement 21: 48.81% students are agree, 19.44 % students are strongly agree, 17.86% are confusion, 11.11% are disagree and 2.78% students are strongly disagree with this statement. More students viewed that any person of average intelligence can learn to understand a good deal of mathematics.
- 22) For the statement 22: 50.79% students are agree with this statement 19.05% are strongly agree, 21.43% are confusion 5.56% are disagree and 3.17% are strongly disagree with this statements. It proved that most of the students are favour on this statement. It can be said complex mathematics can be made understandable.
- 23) For the statement 23: 41.27% students are agree, 39.29% are strongly agree 6.75% are confusion, 9.13 are disagree and 3.57% are strongly disagree, very few students are against with this statement. It proof that it is positive attitude.
- 24) For the statement 23: 38.89% students are disagree, 31.75% students are strongly disagree, 13.10% students are confusion, 9.92% are agree, and 6.35% are strongly agree with this statement. Here more student are not favour with this statement. So any person can learn mathematics.

4.1.4 Analysis and interpretation of attitudes towards the place of mathematics in society

Table No 4

25	29	11.51	79	31.35	74	29.37	54	21.43	16	6.35
26	68	26.98	114	45.24	12	4.76	35	13.89	23	9.13
27	13	5.16	16	6.35	25	9.92	67	26.59	131	51.98
28	106	42.06	114	45.24	23	9.13	5	1.98	4	1.59
29	70	27.78	103	40.87	63	25.00	11	4.37	5	1.98
30	83	32.94	114	45.24	28	11.11	21	8.33	6	2.38
31	20	7.94	41	16.27	56	22.22	92	36.51	43	17.06
32	98	38.89	82	32.54	36	14.29	30	11.90	6	2.38
Total	487	193.25	663	263.10	317	125.79	315	125.00	234	92.86
G. Total	2240		2663		1255		1056		8050	

- 25) For the statement 26: 31.35% students are agree with this statement, 29.37% students are strongly agree, 21.43% are disagree, 11.51% are strongly disagree and 6.35% students are confusion. so this result showed positive altitude.
- 26) for the statement 26: 45.24% students are agree, 26.98% students are strongly agree , 13.89% are disagree, 9.13% are strongly and 4.76% students are in confusion. so this result showed positive attitudes.
- 27) For the statement 27: 51.98% students are strongly disagree, 26.59% students are disagree, 9.92% students are confusion, 6.35% are agree and 5.16% students are strongly agree with this statement. Most of the students are not favour with this statement. So it proved that mathematics is useful for the problems of every day life.
- 28) For the statement 28: 45.24% students are agree with this statement, 42.06% students are strongly agree with this statement, 9.13% students are confusion, 1.98% are disagree and 1.59% are strongly disagree with this statement. Most of the student are favour with this statement most students agree that mathematics is of great importance to a country's development.

- 29) For the statement 29: 40.87% students are agree, 27.78% students are strongly agree, 25.00% are confusion, 4.37% are disagree and 1.98% are strongly disagree with this statement. So most of the students are favour on this statement.
- 30) For the statement 30:45.24% students are agree 32.94% students are strongly agree, 11.11% are confusion, 8.33% are disagree and 2.38% students are strongly disagree with this statement. Most of the students are agreed it is important to know mathematics in order to get good job.
- 31) For the statement 31:36.51% students are disagree, 22.22% students are confusion, 17.06% students are strongly disagree, 16.27% students are agree and 7.94% students are strongly agree.
- 32) For the statement 32: 38.89% students are strongly agree, 32.54% students are agree, 14.29% are confusion, 11.90% students are disagree and 2.38% students are strongly disagree. This result showed most of the students agreed with the statement which clarifies that near future most jobs will require advanced mathematics knowledge.

4.1.5 Percentage of students' attitude in five options:

Table: 5

Response of students' attitudes in percentage

Options	Percentages
Strongly Agree	27.78
Agree	33.02
Undecided	15.56
Disagree	13.10
Strongly Disagree	10.54
Total	100

The table no 5 shows that 33.02% students are agree with the given statements. 27.28% students are strongly agree with this statement. 15.56% students are in undecided, 13% students are in disagree and 10.54% students are in strongly

disagree with the given statements. More students view is positive and few students view is negative. Therefore the implication is that majority of the students liked mathematics and gave emphasize this subject.

4.1.6 Percentage of Favorable Responses of Gurung Students on the basis of Aspects

The questionnaire had been divided into four different parts to find out the attitude of Gurung students' to mathematics. The finding out of the view the students are given by percentage as following table:

Table No 6
Favorable Responses of the Gurung students

S.No.	Aspects	View in percentage
1.	Views about mathematics Teaching (1-9)	60.27
2.	Attitudes towards mathematics as a process (10-17)	68.55
3.	Altitudes about difficulty of learning mathematics (18-24)	56.91
4.	Attitudes towards the place of mathematics in society (25-32)	57.04

By analyzing table no 6 "Views about mathematics teaching" includes 9 items and ranges from a point of view of mathematics as simply a teacher centered and students centered. So most of the students are favor with this statement. "Attitudes towards mathematics as process" includes 8 items. As a whole by analyzing the statements, it can be concluded that more then 50% students are in favor to these items which proves that the students attitudes are moderate towards the mathematics as p process. "Attitudes about the difficulty of learning mathematics" consists of seven items. More than 50% students supported the view that almost anyone can learn mathematics if he / she is willing to study .It shows that their confidence level for learning mathematics and the statements are substantial. "Attitudes towards the place of mathematics

in society" include eight items and here 50% students have supported that mathematics is of great importance in society .

4.2 Comparison of Gurung students' attitudes and achievement towards mathematics:

The second objective of the study was to compare Gurung student in order to full fill this objective, hypothesis was formulated. The hypotheses is that "There is no significance difference between mean scores on attitude and achievement of Gurung students towards mathematics."

The attitude score and achievement score to this hypothesis are given in **Appendix –F** The mean, standard deviation, Degree of freedom, Critical region and calculated value are given in the following table.

Table No. 7
Comparison of Gurung students' attitudes and Achievement of Gurung students towards mathematics.

Group compared	N	Mean	SD	DF	Critical region at $\alpha = 0.05$	Calculated t-value	Remarks
Attitudes	252	77.10	6.56	502	t 1.96	31.10	Rejected H_0 at $\alpha = 0.05$
Achievement	252	39.04	18.22				

The analysis of the information presented in above table no. 7 shows that there were 252 Gurung students. The mean score of Gurung student attitudes is 77.10 and Mean score of Gurung students in achievement is 39.04. The standard deviation of Gurung students' attitudes is 6.56 and standard deviation of achievement is 18.22. The degree of freedom is $n_1+n_2 -2$ i.e $252 + 252 -2 = 502$. The combined pooled sample variance is denoted by S_p^2 which is

$$\text{calculated by } S_p^2 = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}$$

$$\begin{aligned}
S_p^2 &= \frac{(252 Z1)43.84 \Gamma (252 Z1)331.89}{252 \Gamma 252 Z2} \\
&= \frac{10963.68 \Gamma 82973.07}{503} \\
&= \frac{93936.75}{503} \\
&= 186.75 \\
S_p &= 13.67
\end{aligned}$$

$$\begin{aligned}
\text{Then, t-value} &= \frac{(\bar{X}_1 - \bar{X}_2)}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \\
&= \frac{77.1 - 39.04}{13.67 \sqrt{\frac{1}{252} + \frac{1}{252}}} \\
&= \frac{38.06}{13.67 \sqrt{0.003968 + 0.003968}} \\
&= \frac{38.06}{13.67 \sqrt{0.007936}} \\
&= 31.10
\end{aligned}$$

From above, the calculated t-value is 31.10 by using t-static. The critical region is obtained $t | t_{\frac{\alpha}{2}, n_1 \Gamma n_2 Z2}$ i.e. $t | t_{0.025, 502}$ i.e. $t | 1.96$ and $t^{TM} Z1.96$ at 5% level of significance. The null hypothesis was rejected. Hence we conclude that there is a significant difference between Gurung students' attitudes and Gurung students achievement towards mathematics in secondary level.

4.3 Relationship between Gurung Students' Attitudes and Achievements in Mathematics:

To find the relationship between attitudes and achievements, the researcher has used Karl Pearson's product moment method to compute the value of r. The attitudes scores of Gurung students are converted in to '100' in the place of

'160'. The required values to calculate correlation coefficients 'r' are shown in Appendix-G. From appendix –G,

No. of attitude scores of Gurung students (N) =252

No. of achievements scores of Gurung students (N) =252

Sum of all attitude scores of Gurung students (ϕX) = 19431

Sum of all achievement scores of Gurung students (ϕY) = 9839

Sum of all squares of attitude scores of Gurung students (ϕX^2) = 1509275

Sum of all squares of achievement score of Gurung students (ϕY^2) = 467455

Sum of all product attitude score and achievement score of Gurung students (ϕXY) = 756621

By Karl Pearson's product moment to compute the value of 'r'.

$$\begin{aligned}
 r &= \frac{N\phi XY - Z\phi X \cdot \phi Y}{\sqrt{N\phi X^2 - Z(\phi X)^2} \sqrt{N\phi Y^2 - Z(\phi Y)^2}} \\
 &= \frac{252 | 756621 - 19431 | 9839}{\sqrt{252 | 1509275 - (19431)^2} \sqrt{252 | 467455 - (9839)^2}} \\
 &= \frac{190668492 - 191181609}{\sqrt{380337300 - 337563761} \sqrt{117798660 - 96805921}} \\
 &= \frac{-513117}{\sqrt{2773539} \sqrt{20992739}} \\
 &= \frac{-513117}{1665.39 | 4581.78} \\
 &= \frac{-513117}{7630450.594} \\
 &= -0.07
 \end{aligned}$$

$$\begin{aligned}
 \dots \text{t-value} &= \frac{r\sqrt{n} Z_2}{\sqrt{1 - r^2}} \\
 &= \frac{-0.07\sqrt{252} Z_2}{\sqrt{1 - (-0.07)^2}} \\
 &= \frac{-1.1068}{0.99510} \\
 &= -1.112
 \end{aligned}$$

Table No 8

Determination the relationship between attitude score and achievement score of Gurung students towards Mathematics in secondary level

Correlation between	n	Correlation coefficient (r)	Calculated value	Critical Region	Decision
Gurung Students' Attitudes and Achievements	252	r = -0.07	t = - 1.112	$ t > 1.96$	Accepting H_0 at $r < 0.05$

Researcher took 252 students altogether as samples from eight different schools. The correlation coefficient between attitude score and achievement score of Gurung students towards in Mathematics at secondary level (r) is -0.07. From above, t, – value is calculated which is – 1.112 . The critical region at 0.05 level of significance and n-2 degree of freedom i.e. $t_{\frac{\alpha}{2}, n-2}$ i.e. $t_{0.05, 250}$ is 1.96. Here the calculated t-value is less than 1.96. So, researcher got the decision that there is no correlation between attitude score and achievement score of Gurung students towards Mathematics.

From table number 8, the correlation coefficient between attitude and achievement score of Gurung students is -0.07. This indicates that there is negative negligible relationship between Gurung students' attitude and achievement scores. Although the students have positive attitude towards mathematics, they have negative relationship between attitudes and achievement. Though the students have negative negligible relationship between their attitudes and achievement, they can have positive attitude towards mathematics by studying above correlation coefficient scores, it is concluded that the students have negligible negative relationship between attitude and achievement ie there is no relationship between attitudes and achievement in mathematics at secondary level. At last attitude and achievement of Gurung students in Kaski district is independent.

CHAPTER – V

SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATIONS

After analyzing and interpreting the data, the researcher has tried to summarize, finding, deriving conclusion and provide some recommendations for pedagogical purpose for the further study. The first section of this chapter reveals the summary of the study; the second section lists the finding, the third section deals with conclusions derived on the basis of research analysis and the fourth section presents the recommendations for further study.

5.1 Summary

Mathematics plays an important role in the development of human civilization. The main aims of the study were to find out the attitudes of Gurung students towards mathematics of secondary level. Mainly, this study purpose is to find out and analyzing the Gurung students attitudes towards mathematics at secondary level. In this study 8 schools were selected (including government and private) from the four election region of Kaski district. Two secondary school were selected from each election region. For the study there were following objectives:-

- i. To find the attitude of Gurung students towards mathematics in secondary level.
- ii. To compare attitude and achievement of Gurung students to mathematics in secondary level.
- iii. To determine the relationship between attitude score and achievement score towards mathematics in Secondary level.

To fulfill these objectives the researcher used questionnaire developed by George Levine (1971 A.D.) and likert five point scale. It comprises 32 statements. These were related to student attitude. The attitude of students

providing five categories of rating scale are as i. Strongly agree ii. Agree iii. Undecided iv. Disagree v. Strongly Disagree. The ratio scale was taken on two categories positive and Negative. For positive response the score 5, 4, 3, 2, 1 were given in the favor of Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree respectively. And for the negative response the score 1, 2, 3, 4, 5 were given in the favor of Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree respectively. For this study the researcher had selected eight schools of Kaski district by using stratified random sampling. On this study, the researcher had taken the sample schools from four election region of Kaski district. Two schools were selected from each election region by simple random sampling method. From election region first, second, third, and fourth 58, 100, 27, 67 students were selected respectively from sampled schools by simple random sampling method. Altogether, there were $58+100+27+67 = 252$ sample Gurung students who were reading in class 9 and 10.

The set of questionnaires consists in four areas of Gurung students' characteristics. The four areas are in following.

- i) Views about mathematics teaching
- ii) Attitudes towards mathematics as a process
- iii) Attitude about difficulty of learning mathematics
- iv) Attitude towards the place of mathematics in society.

The obtained data were analyzed with the help of percentage, the standard deviation; two tailed t-test and correlation coefficient are used to compare the significant differences of mean scores of attitudes and achievement of students as well as to determine relationship between attitude and achievement scores of students. The t-test was tested at 0.05 level of significant.

5.2 Findings of the study

Statistical analysis of the data gives the following results as the finding of the study.

- i. The Gurung Students have the positive attitudes towards mathematics they believed that mathematics teaching helped them to develop an orderly, logical and analytical way of thinking. They are confidence in mathematics and it is very good field for creative people to enter. Mathematics is helpful to solve the problem of daily life. Mathematics has played a very important role in building up modern civilization of society.
- ii. The mean attitude score of Gurung students was 77.10 and their standard deviation was 6.56. Similarly the mean achievement score of Gurung students was 39.04 and standard deviation was 18.22. By the help of this result we conclude that there is significance difference between mean score of Gurung students attitude and achievement.
- iii. The correlation coefficient between Gurung students attitudes and achievement is -0.07. So there is no relationship between Gurung students attitudes and achievement towards mathematics. ie Attitudes scores and achievement score of Gurung students in secondary level are independent.

5.3 Conclusion of the study

On the basis of the findings some significant conclusion can be drawn that have important implication for the research in the field of teaching and learning mathematics to the Gurung students. From this study the researcher has drawn different conclusions about Gurung students attitudes and it's relationship with their achievement at secondary level.

From the result of the study the main conclusion which were listed in the following points.

- i. The Gurung students have the positive attitude towards mathematics at secondary level.
- ii. There is significance difference between Gurung students attitude and achievement towards mathematics at secondary level.
- iii. There is no relationship between Gurung students attitudes and achievement towards mathematics at secondary level.

5.4 Recommendation for further study

On the basis of finding of the study the following suggestion are preparing for the further researcher:-

- i. The conclusion of this study will be valid for the Gurung students at secondary level of Kaski district. So it is suggested to carry out national wise research on it. Similarly the study should be conducted for other grade as well as levels.
- ii. Further study can be done on the topic comparison of Gurung students and non-Gurung student attitude towards mathematics.
- iii. The further research should be done on problems faced by the teacher of Gurung students in teaching mathematics.
- iv. It would be advisable to study the opoinions an attitude of Gurung students towards the instructional materials.
- v. Further research should be done on the entraneous variables which affect the Gurung student attitude and achievement in mathematics.
- vi. In this study it was studied that attitude and achievement of Gurung students. But in coming days further researcher should be done in all the topic of mathematics in secondary Level.

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Appendix A

Details about sampled school and number of Gurung students

S.N.	Name of the school	Address	Election region	Number of the students
1.	Annapurna secondary school	Parche V. D. C Kaski	1	30
2.	Janakalyan Higher secondary school	Bhachok V. D. C. 8 Kaski	1	28
3.	Pokhara united Academy	Pokhara, 13 Kaski	2	23
4.	Tops Higher Secondary school	Pokhara Ramghat	2	77
5.	Gyankunga Secondary School	Pokhara Naghdhunga	3	14
6.	Nilgiri Secondary School	Pokhara Newroad	3	13
7.	Meshram Baraha Secondary School	Ghandruk V. D.C. Kaski	4	37
8.	Bahadure Secondary School	Bhadaure Deurali V.D.C. Kaski	4	30
Total			8	252

Appendix- B
Questionnaire for primary data collection
Questionnaire for students

Dear students,

I am an M.Ed. student. I am going to conduct a study for the thesis paper, which is concerned with titled," A Study on Attitude of Gurung Students towards Mathematics and its Relationship with their Achievement in Secondary level.

Here I have tried to know your attitude about mathematics with your valuable help. There are 32 statements concerned with attitude. The alternative answer must be selected according to your view. More then one answer would not valid. So please read the given statement carefully and tick (✓) in "SA" for Strongly Agree, "A" for Agree , "U" for Undecided , "D" for Disagree, and "SD" for Strongly Disagree in your vision.

Example:

S .N.	statement	SA	A	U	D	SD
1	Mathematics is important subject		✓			

Student's Name :Roll No:.....

School's Name :

Address :

Date:

i) Views about teaching Mathematics

S.N	Statement	SA	A	U	D	SD
1	My Mathematics teacher does not like pupils to ask question after he has given an explanation.					
2	My Mathematics teachers show us different ways of solving the same problem.					
3	My Mathematics teacher wants pupils to solve problem only by the procedures he teaches.					
4	My Mathematics teachers expects us to learn how to solve problems by ourselves but helps when we have difficulties.					
5	In my mathematics class, pupils who have original ideas get better marks than the pupils who are most careful and neat in their work.					
6	My Mathematics teacher requires the pupils not only to master the steps in solving problems, but also to understand the reasoning involved.					
7	My Mathematics teacher encourage us to try to find several different methods for a solving a particular problem.					
8	My Mathematics course requires more thinking about the method of solving problems than memorization of rules and formulae.					
9	My Mathematics teacher wants us to discover mathematics principles and ideas for our selves					

(ii) Attitude towards mathematics as a process

10	In Mathematics there is always rule to follow in solving problems.					
11	The most important reason for studying arithmetic in secondary school Mathematics is that it help people to take care of their own financial affairs.					
12	Mathematics helps one to think according to strict rules.					
13	Almost all of present day mathematics was known at least a century ago.					

14	Mathematics is a very good field for creative people to enter.					
15	There is little place for originality Mathematics.					
16	Mathematics will change rapidly in the near future.					
17	In the study of Mathematics if a pupil misses a few lessons, it is difficult to catch up.					

(iii) Attitudes about Difficulty of Learning Mathematics.

18	Anyone can learn Mathematics.					
19	Very few people can learn Mathematics.					
20	Almost anyone can learn Mathematics if he is willing to study.					
21	Any person of average intelligence can learn to understand a good deal of Mathematics.					
22	Even Complex Mathematics can be made understandable and useful to every high school pupil.					
23	Almost all pupils can learn Complex Mathematics if it is properly taught.					
24	Only people with a very special talent can learn Mathematics.					

(iv) Attitudes towards the Place of Mathematics in society

25	More of the most people should be encouraged to become Mathematicians and Mathematics teachers.					
26	Outside of science and engineering there is little need for Mathematics in most jobs.					
27	Mathematics is not useful for the problems of everyday life.					
28	Mathematics is of great importance to a country's development.					
29	A thorough knowledge of advanced Mathematics is the key to an understanding of our world in the					

	21 st century.					
30	It is important to know Mathematics in order to get a good job.					
31	Unless one is planning to become a Mathematician or a scientist, the study advanced Mathematics is not very important.					
32	In near future most jobs will require a knowledge of advanced Mathematics.					

Appendix- C

Area of Questionnaire in positive sense and Negative sense

S.N	Areas	Positive Questions	Negative Questions
1	Views about teaching mathematics	2,4,5,6,7,8	1,3,9
2	Attitude towards mathematics as a process	10,11,12,13,14,16,17	15
3	Attitudes about difficulty of learning mathematics	18,20,21,22,23	19,24
4	Attitudes towards the place of mathematics in society	25,26,28,29,30,32	27,31

Appendix –D
Achievement score of students

S.N.	Name of the school	Marks obtained in annual exam report-2067 B.S.
1.	Annapurna secondary school	49,38,32,32,32,32,32,5,32,32,32,32,32,32,32,32,32,32,2,8,32,32,2,4,32,32,8,32,56,43,32,3,32,32
2.	Janakalyan Higher secondary school	32,33,56,37,33,37,36,37,46,54,32,32,32,32,32,58,32,50,32,43,32,32,34,35,32,35,32,32
3.	Pokhara united Academy	41,47,25,71,52,55,35,17,32,60,42,26,32,57,76,44,53,61,82,78,39,49,56
4.	Tops Higher Secondary school	32,97,76,76,58,40,33,64,36,43,32,32,32,32,32,32,32,32,32,38,32,32,32,96,93,86,75,66,32,52,41,32,33,32,32,32,44,32,41,32,32,34,47,57,52,64,41,47,32,43,80,75,50,85,58,32,58,68,60,36,71,61,50,76,32,35,32,32,53,32,44,38,32,80,63,46,32,
5.	Gyankunga Secondary School	24,69,23,28,15,81,53,31,6,58,50,27,30,40
6.	Nilgiri Secondary School	36,45,41,27,74,63,39,87,52,38,50,32,35
7.	Meshram BarahaSecondary School	32,32,32,13,33,67,32,32,32,37,35,8,34,20,32,32,32,32,84,32,6,38,5,32,55,38,32,14,6,3,40,10,32,6,8,32
8.	Bahadure Secondary School	42,38,32,32,12,32,32,32,33,32,32,53,33,32,45,33,50,32,32,8,32,7,10,17,25,32,13,32,32,32

Appendix- E

Attitudes scores and their percentage of Gurung students

SN	SA	%	A	%	U	%	D	%	SD	%
1	5	1.98	13	5.16	4	1.59	74	29.37	156	61.90
2	150	59.52	87	34.52	9	3.57	2	0.79	4	1.59
3	7	2.78	20	7.94	28	11.11	115	45.63	82	32.54
4	133	52.78	81	32.14	12	4.76	13	5.16	13	5.16
5	50	19.84	86	34.13	65	25.79	34	13.49	17	6.75
6	132	52.38	101	40.08	13	5.16	2	0.79	4	1.59
7	124	49.21	111	44.05	11	4.37	3	1.19	3	1.19
8	47	18.65	128	50.79	37	14.68	34	13.49	6	2.38
9	27	10.71	65	25.79	82	32.54	46	18.25	32	12.70
total	675	267.86	692	274.60	261	103.57	323	128.17	317	125.79
10	103	40.87	96	38.10	17	6.75	19	7.54	17	6.75
11	66	26.19	133	52.78	32	12.70	16	6.35	5	1.98
12	84	33.33	103	40.87	44	17.46	17	6.75	4	1.59
13	59	23.41	67	26.59	111	44.05	10	3.97	5	1.98
14	128	50.79	94	37.30	15	5.95	12	4.76	3	1.19
15	83	33.20	80	31.75	45	17.86	24	9.52	20	7.94
16	28	11.11	40	15.87	155	61.51	17	6.75	12	4.76
17	137	54.37	81	32.14	9	3.57	13	5.16	12	4.76
Total	688	273.28	694	275.40	428	169.84	128	50.79	78	30.95
18	67	26.59	78	30.95	36	14.29	36	14.29	35	13.89

19	9	3.57	47	18.65	44	17.46	75	29.76	77	30.56
20	102	40.48	109	43.25	20	7.94	16	6.35	5	1.98
21	49	19.44	123	48.81	45	17.86	28	11.11	7	2.78
22	48	19.05	128	50.79	54	21.43	14	5.56	8	3.17
23	99	39.29	104	41.27	17	6.75	23	9.13	9	3.57
24	16	6.35	25	9.92	33	13.10	98	38.89	80	31.75
Total	390	154.76	614	243.65	249	98.81	290	115.08	221	87.70
25	29	11.51	79	31.35	74	29.37	54	21.43	16	6.35
26	68	26.98	114	45.24	12	4.76	35	13.89	23	9.13
27	13	5.16	16	6.35	25	9.92	67	26.59	131	51.98
28	106	42.06	114	45.24	23	9.13	5	1.98	4	1.59
29	70	27.78	103	40.87	63	25.00	11	4.37	5	1.98
30	83	32.94	114	45.24	28	11.11	21	8.33	6	2.38
31	20	7.94	41	16.27	56	22.22	92	36.51	43	17.06
32	98	38.89	82	32.54	36	14.29	30	11.90	6	2.38
Total	487	193.25	663	263.10	317	125.79	315	125.00	234	92.86
G.Total	2240		2663		1255		1056		8050	

Appendix – F

Attitude score and Achievement score with mean

S.N	Attitude Score X_1	$x_1 - \bar{X}_1$ ($\bar{X}_1 = 77.1$)	$(x_1 - \bar{X}_1)^2$	Achievement Score X_2	$x_2 - \bar{X}_2$ ($\bar{X}_2 = 39.04$)	$(x_2 - \bar{X}_2)^2$
1	84	6.9	47.61	41	1.96	3.8416
2	85	7.9	62.41	47	7.96	63.3616
3	78	0.9	0.81	25	-14.04	197.1216
4	66	-11.1	123.21	71	31.96	1021.4416
5	72	-5.1	26.01	52	12.96	167.9616
6	76	-1.1	1.21	55	15.96	254.7216
7	80	2.9	8.41	35	-4.04	16.3216
8	84	6.9	47.61	17	-22.04	485.7616
9	89	11.9	141.61	32	-7.04	49.5616
10	70	-7.1	50.41	60	20.96	439.3216
11	79	1.9	3.61	42	2.96	8.7616
12	73	-4.1	16.81	26	-13.04	170.0416
13	62	-15.1	228.01	32	-7.04	49.5616
14	82	4.9	24.01	57	17.96	322.5616
15	68	-9.1	82.81	76	36.96	1366.0416
16	59	-18.1	327.61	44	4.96	24.6016
17	71	-6.1	37.21	53	13.96	194.8816
18	77	-0.1	0.01	61	21.96	482.2416
19	61	-16.1	259.21	82	42.96	1845.5616
20	62	-15.1	228.01	78	38.96	1517.8816
21	74	-3.1	9.61	39	-0.04	0.0016

22	66	-11.1	123.21	49	9.96	99.2016
23	79	1.9	3.61	56	16.96	287.6416
24	66	-11.1	123.21	49	9.96	99.2016
25	73	-4.1	16.81	38	-1.04	1.0816
26	66	-11.1	123.21	32	-7.04	49.5616
27	66	-11.1	123.21	32	-7.04	49.5616
28	64	-13.1	171.61	32	-7.04	49.5616
29	80	2.9	8.41	32	-7.04	49.5616
30	78	0.9	0.81	32	-7.04	49.5616
31	84	6.9	47.61	5	-34.04	1158.7216
32	75	-2.1	4.41	32	-7.04	49.5616
33	84	6.9	47.61	32	-7.04	49.5616
34	78	0.9	0.81	32	-7.04	49.5616
35	79	1.9	3.61	32	-7.04	49.5616
36	74	-3.1	9.61	32	-7.04	49.5616
37	91	13.9	193.21	32	-7.04	49.5616
38	80	2.9	8.41	32	-7.04	49.5616
39	88	10.9	118.81	8	-31.04	963.4816
40	75	-2.1	4.41	32	-7.04	49.5616
41	73	-4.1	16.81	32	-7.04	49.5616
42	69	-8.1	65.61	2	-37.04	1371.9616
43	68	-9.1	82.81	4	-35.04	1227.8016
44	62	-15.1	228.01	32	-7.04	49.5616
45	66	-11.1	123.21	32	-7.04	49.5616
46	69	-8.1	65.61	8	-31.04	963.4816
47	74	-3.1	9.61	32	-7.04	49.5616
48	81	3.9	15.21	56	16.96	287.6416
49	64	-13.1	171.61	43	3.96	15.6816
50	89	11.9	141.61	32	-7.04	49.5616
51	80	2.9	8.41	3	-36.04	1298.8816
52	88	10.9	118.81	32	-7.04	49.5616
53	78	0.9	0.81	32	-7.04	49.5616
54	78	0.9	0.81	42	2.96	8.7616
55	82	4.9	24.01	38	-1.04	1.0816
56	77	-0.1	0.01	32	-7.04	49.5616
57	80	2.9	8.41	32	-7.04	49.5616
58	83	5.9	34.81	12	-27.04	731.1616
59	84	6.9	47.61	32	-7.04	49.5616
60	83	5.9	34.81	32	-7.04	49.5616
61	86	8.9	79.21	32	-7.04	49.5616
62	79	1.9	3.61	33	-6.04	36.4816
63	78	0.9	0.81	32	-7.04	49.5616
64	79	1.9	3.61	32	-7.04	49.5616
65	86	8.9	79.21	53	13.96	194.8816
66	68	-9.1	82.81	33	-6.04	36.4816
67	85	7.9	62.41	32	-7.04	49.5616
68	76	-1.1	1.21	45	5.96	35.5216
69	71	-6.1	37.21	33	-6.04	36.4816
70	79	1.9	3.61	50	10.96	120.1216
71	76	-1.1	1.21	32	-7.04	49.5616
72	75	-2.1	4.41	32	-7.04	49.5616
73	71	-6.1	37.21	8	-31.04	963.4816
74	86	8.9	79.21	32	-7.04	49.5616
75	73	-4.1	16.81	7	-32.04	1026.5616
76	79	1.9	3.61	10	-29.04	843.3216
77	81	3.9	15.21	17	-22.04	485.7616
78	77	-0.1	0.01	25	-14.04	197.1216
79	74	-3.1	9.61	32	-7.04	49.5616
80	77	-0.1	0.01	13	-26.04	678.0816
81	54	-23.1	533.61	32	-7.04	49.5616
82	73	-4.1	16.81	32	-7.04	49.5616
83	76	-1.1	1.21	32	-7.04	49.5616
84	77	-0.1	0.01	32	-7.04	49.5616
85	79	1.9	3.61	33	-6.04	36.4816

86	81	3.9	15.21	56	16.96	287.6416
87	70	-7.1	50.41	37	-2.04	4.1616
88	81	3.9	15.21	33	-6.04	36.4816
89	77	-0.1	0.01	37	-2.04	4.1616
90	78	0.9	0.81	36	-3.04	9.2416
91	89	11.9	141.61	37	-2.04	4.1616
92	93	15.9	252.81	46	6.96	48.4416
93	78	0.9	0.81	54	14.96	223.8016
94	83	5.9	34.81	32	-7.04	49.5616
95	78	0.9	0.81	32	-7.04	49.5616
96	87	9.9	98.01	32	-7.04	49.5616
97	84	6.9	47.61	32	-7.04	49.5616
98	81	3.9	15.21	32	-7.04	49.5616
99	79	1.9	3.61	58	18.96	359.4816
100	75	-2.1	4.41	32	-7.04	49.5616
101	86	8.9	79.21	50	10.96	120.1216
102	79	1.9	3.61	32	-7.04	49.5616
103	68	-9.1	82.81	43	3.96	15.6816
104	71	-6.1	37.21	32	-7.04	49.5616
105	79	1.9	3.61	32	-7.04	49.5616
106	78	0.9	0.81	34	-5.04	25.4016
107	81	3.9	15.21	35	-4.04	16.3216
108	78	0.9	0.81	32	-7.04	49.5616
109	74	-3.1	9.61	35	-4.04	16.3216
110	76	-1.1	1.21	32	-7.04	49.5616
111	74	-3.1	9.61	32	-7.04	49.5616
112	74	-3.1	9.61	97	57.96	3359.3616
113	81	3.9	15.21	76	36.96	1366.0416
114	81	3.9	15.21	76	36.96	1366.0416
115	73	-4.1	16.81	58	18.96	359.4816
116	76	-1.1	1.21	40	0.96	0.9216
117	74	-3.1	9.61	33	-6.04	36.4816
118	73	-4.1	16.81	64	24.96	623.0016
119	74	-3.1	9.61	36	-3.04	9.2416
120	73	-4.1	16.81	43	3.96	15.6816
121	66	-11.1	123.21	32	-7.04	49.5616
122	73	-4.1	16.81	32	-7.04	49.5616
123	64	-13.1	171.61	32	-7.04	49.5616
124	76	-1.1	1.21	32	-7.04	49.5616
125	77	-0.1	0.01	32	-7.04	49.5616
126	76	-1.1	1.21	32	-7.04	49.5616
127	75	-2.1	4.41	32	-7.04	49.5616
128	79	1.9	3.61	32	-7.04	49.5616
129	77	-0.1	0.01	32	-7.04	49.5616
130	76	-1.1	1.21	32	-7.04	49.5616
131	79	1.9	3.61	38	-1.04	1.0816
132	60	-17.1	292.41	32	-7.04	49.5616
133	68	-9.1	82.81	32	-7.04	49.5616
134	73	-4.1	16.81	32	-7.04	49.5616
135	74	-3.1	9.61	96	56.96	3244.4416
136	68	-9.1	82.81	93	53.96	2911.6816
137	76	-1.1	1.21	86	46.96	2205.2416
138	76	-1.1	1.21	75	35.96	1293.1216
139	83	5.9	34.81	66	26.96	726.8416
140	74	-3.1	9.61	32	-7.04	49.5616
141	80	2.9	8.41	52	12.96	167.9616
142	71	-6.1	37.21	41	1.96	3.8416
143	78	0.9	0.81	32	-7.04	49.5616
144	83	5.9	34.81	33	-6.04	36.4816
145	83	5.9	34.81	32	-7.04	49.5616
146	69	-8.1	65.61	32	-7.04	49.5616
147	69	-8.1	65.61	32	-7.04	49.5616
148	81	3.9	15.21	44	4.96	24.6016
149	81	3.9	15.21	32	-7.04	49.5616
150	73	-4.1	16.81	41	1.96	3.8416

151	81	3.9	15.21	32	-7.04	49.5616
152	81	3.9	15.21	32	-7.04	49.5616
153	77	-0.1	0.01	34	-5.04	25.4016
154	76	-1.1	1.21	47	7.96	63.3616
155	80	2.9	8.41	57	17.96	322.5616
156	78	0.9	0.81	52	12.96	167.9616
157	74	-3.1	9.61	64	24.96	623.0016
158	74	-3.1	9.61	41	1.96	3.8416
159	78	0.9	0.81	47	7.96	63.3616
160	78	0.9	0.81	32	-7.04	49.5616
161	73	-4.1	16.81	43	3.96	15.6816
162	71	-6.1	37.21	80	40.96	1677.7216
163	79	1.9	3.61	75	35.96	1293.1216
164	76	-1.1	1.21	50	10.96	120.1216
165	76	-1.1	1.21	85	45.96	2112.3216
166	81	3.9	15.21	58	18.96	359.4816
167	81	3.9	15.21	32	-7.04	49.5616
168	65	-12.1	146.41	58	18.96	359.4816
169	78	0.9	0.81	68	28.96	838.6816
170	83	5.9	34.81	60	20.96	439.3216
171	92	14.9	222.01	36	-3.04	9.2416
172	91	13.9	193.21	71	31.96	1021.4416
173	90	12.9	166.41	61	21.96	482.2416
174	94	16.9	285.61	50	10.96	120.1216
175	94	16.9	285.61	76	36.96	1366.0416
176	81	3.9	15.21	32	-7.04	49.5616
177	83	5.9	34.81	35	-4.04	16.3216
178	83	5.9	34.81	32	-7.04	49.5616
179	85	7.9	62.41	32	-7.04	49.5616
180	80	2.9	8.41	53	13.96	194.8816
181	81	3.9	15.21	32	-7.04	49.5616
182	86	8.9	79.21	44	4.96	24.6016
183	84	6.9	47.61	38	-1.04	1.0816
184	88	10.9	118.81	32	-7.04	49.5616
185	88	10.9	118.81	80	40.96	1677.7216
186	91	13.9	193.21	63	23.96	574.0816
187	87	9.9	98.01	46	6.96	48.4416
188	74	-3.1	9.61	32	-7.04	49.5616
189	74	-3.1	9.61	32	-7.04	49.5616
190	71	-6.1	37.21	32	-7.04	49.5616
191	76	-1.1	1.21	32	-7.04	49.5616
192	76	-1.1	1.21	13	-26.04	678.0816
193	84	6.9	47.61	33	-6.04	36.4816
194	78	0.9	0.81	67	27.96	781.7616
195	69	-8.1	65.61	32	-7.04	49.5616
196	71	-6.1	37.21	32	-7.04	49.5616
197	81	3.9	15.21	32	-7.04	49.5616
198	81	3.9	15.21	37	-2.04	4.1616
199	80	2.9	8.41	35	-4.04	16.3216
200	81	3.9	15.21	8	-31.04	963.4816
201	81	3.9	15.21	34	-5.04	25.4016
202	79	1.9	3.61	20	-19.04	362.5216
203	75	-2.1	4.41	32	-7.04	49.5616
204	74	-3.1	9.61	32	-7.04	49.5616
205	81	3.9	15.21	32	-7.04	49.5616
206	81	3.9	15.21	32	-7.04	49.5616
207	84	6.9	47.61	32	-7.04	49.5616
208	65	-12.1	146.41	84	44.96	2021.4016
209	74	-3.1	9.61	32	-7.04	49.5616
210	75	-2.1	4.41	6	-33.04	1091.6416
211	73	-4.1	16.81	38	-1.04	1.0816
212	79	1.9	3.61	5	-34.04	1158.7216
213	75	-2.1	4.41	32	-7.04	49.5616
214	73	-4.1	16.81	55	15.96	254.7216
215	71	-6.1	37.21	38	-1.04	1.0816

216	75	-2.1	4.41	32	-7.04	49.5616
217	71	-6.1	37.21	14	-25.04	627.0016
218	77	-0.1	0.01	6	-33.04	1091.6416
219	79	1.9	3.61	3	-36.04	1298.8816
220	71	-6.1	37.21	40	0.96	0.9216
221	78	0.9	0.81	10	-29.04	843.3216
222	74	-3.1	9.61	32	-7.04	49.5616
223	78	0.9	0.81	6	-33.04	1091.6416
224	83	5.9	34.81	8	-31.04	963.4816
225	77	-0.1	0.01	32	-7.04	49.5616
226	79	1.9	3.61	24	-15.04	226.2016
227	75	-2.1	4.41	69	29.96	897.6016
228	75	-2.1	4.41	23	-16.04	257.2816
229	73	-4.1	16.81	28	-11.04	121.8816
230	81	3.9	15.21	15	-24.04	577.9216
231	66	-11.1	123.21	81	41.96	1760.6416
232	83	5.9	34.81	53	13.96	194.8816
233	79	1.9	3.61	31	-8.04	64.6416
234	78	0.9	0.81	6	-33.04	1091.6416
235	79	1.9	3.61	58	18.96	359.4816
236	81	3.9	15.21	50	10.96	120.1216
237	83	5.9	34.81	27	-12.04	144.9616
238	86	8.9	79.21	30	-9.04	81.7216
239	76	-1.1	1.21	40	0.96	0.9216
240	76	-1.1	1.21	36	-3.04	9.2416
241	69	-8.1	65.61	45	5.96	35.5216
242	79	1.9	3.61	41	1.96	3.8416
243	78	0.9	0.81	27	-12.04	144.9616
244	74	-3.1	9.61	74	34.96	1222.2016
245	67	-10.1	102.01	63	23.96	574.0816
246	80	2.9	8.41	39	-0.04	0.0016
247	76	-1.1	1.21	87	47.96	2300.1616
248	78	0.9	0.81	52	12.96	167.9616
249	81	3.9	15.21	38	-1.04	1.0816
250	83	5.9	34.81	50	10.96	120.1216
251	80	2.9	8.41	32	-7.04	49.5616
252	83	5.9	34.81	35	-4.04	16.3216
	X= 19431		11006.12	Y=9839		83304.5232

Appendix-G

Correlation between Gurung Students' Attitudes and Achievements in Mathematics

S.N	Attitude Score in 100 full marks (X)	Achievement Score in 100 full marks (Y)	X ²	Y ²	XY
1	84	41	7056	1681	3444
2	85	47	7225	2209	3995
3	78	25	6084	625	1950
4	66	71	4356	5041	4686
5	72	52	5184	2704	3744
6	76	55	5776	3025	4180
7	80	35	6400	1225	2800
8	84	17	7056	289	1428
9	89	32	7921	1024	2848
10	70	60	4900	3600	4200

11	79	42	6241	1764	3318
12	73	26	5329	676	1898
13	62	32	3844	1024	1984
14	82	57	6724	3249	4674
15	68	76	4624	5776	5168
16	59	44	3481	1936	2596
17	71	53	5041	2809	3763
18	77	61	5929	3721	4697
19	61	82	3721	6724	5002
20	62	78	3844	6084	4836
21	74	39	5476	1521	2886
22	66	49	4356	2401	3234
23	79	56	6241	3136	4424
24	66	49	4356	2401	3234
25	73	38	5329	1444	2774
26	66	32	4356	1024	2112
27	66	32	4356	1024	2112
28	64	32	4096	1024	2048
29	80	32	6400	1024	2560
30	78	32	6084	1024	2496
31	84	5	7056	25	420
32	75	32	5625	1024	2400
33	84	32	7056	1024	2688
34	78	32	6084	1024	2496
35	79	32	6241	1024	2528
36	74	32	5476	1024	2368
37	91	32	8281	1024	2912
38	80	32	6400	1024	2560
39	88	8	7744	64	704
40	75	32	5625	1024	2400
41	73	32	5329	1024	2336
42	69	2	4761	4	138
43	68	4	4624	16	272
44	62	32	3844	1024	1984
45	66	32	4356	1024	2112
46	69	8	4761	64	552
47	74	32	5476	1024	2368
48	81	56	6561	3136	4536
49	64	43	4096	1849	2752
50	89	32	7921	1024	2848
51	80	3	6400	9	240
52	88	32	7744	1024	2816
53	78	32	6084	1024	2496
54	78	42	6084	1764	3276
55	82	38	6724	1444	3116
56	77	32	5929	1024	2464
57	80	32	6400	1024	2560
58	83	12	6889	144	996
59	84	32	7056	1024	2688
60	83	32	6889	1024	2656
61	86	32	7396	1024	2752
62	79	33	6241	1089	2607

63	78	32	6084	1024	2496
64	79	32	6241	1024	2528
65	86	53	7396	2809	4558
66	68	33	4624	1089	2244
67	85	32	7225	1024	2720
68	76	45	5776	2025	3420
69	71	33	5041	1089	2343
70	79	50	6241	2500	3950
71	76	32	5776	1024	2432
72	75	32	5625	1024	2400
73	71	8	5041	64	568
74	86	32	7396	1024	2752
75	73	7	5329	49	511
76	79	10	6241	100	790
77	81	17	6561	289	1377
78	77	25	5929	625	1925
79	74	32	5476	1024	2368
80	77	13	5929	169	1001
81	54	32	2916	1024	1728
82	73	32	5329	1024	2336
83	76	32	5776	1024	2432
84	77	32	5929	1024	2464
85	79	33	6241	1089	2607
86	81	56	6561	3136	4536
87	70	37	4900	1369	2590
88	81	33	6561	1089	2673
89	77	37	5929	1369	2849
90	78	36	6084	1296	2808
91	89	37	7921	1369	3293
92	93	46	8649	2116	4278
93	78	54	6084	2916	4212
94	83	32	6889	1024	2656
95	78	32	6084	1024	2496
96	87	32	7569	1024	2784
97	84	32	7056	1024	2688
98	81	32	6561	1024	2592
99	79	58	6241	3364	4582
100	75	32	5625	1024	2400
101	86	50	7396	2500	4300
102	79	32	6241	1024	2528
103	68	43	4624	1849	2924
104	71	32	5041	1024	2272
105	79	32	6241	1024	2528
106	78	34	6084	1156	2652
107	81	35	6561	1225	2835
108	78	32	6084	1024	2496
109	74	35	5476	1225	2590
110	76	32	5776	1024	2432
111	74	32	5476	1024	2368
112	74	97	5476	9409	7178
113	81	76	6561	5776	6156
114	81	76	6561	5776	6156

115	73	58	5329	3364	4234
116	76	40	5776	1600	3040
117	74	33	5476	1089	2442
118	73	64	5329	4096	4672
119	74	36	5476	1296	2664
120	73	43	5329	1849	3139
121	66	32	4356	1024	2112
122	73	32	5329	1024	2336
123	64	32	4096	1024	2048
124	76	32	5776	1024	2432
125	77	32	5929	1024	2464
126	76	32	5776	1024	2432
127	75	32	5625	1024	2400
128	79	32	6241	1024	2528
129	77	32	5929	1024	2464
130	76	32	5776	1024	2432
131	79	38	6241	1444	3002
132	60	32	3600	1024	1920
133	68	32	4624	1024	2176
134	73	32	5329	1024	2336
135	74	96	5476	9216	7104
136	68	93	4624	8649	6324
137	76	86	5776	7396	6536
138	76	75	5776	5625	5700
139	83	66	6889	4356	5478
140	74	32	5476	1024	2368
141	80	52	6400	2704	4160
142	71	41	5041	1681	2911
143	78	32	6084	1024	2496
144	83	33	6889	1089	2739
145	83	32	6889	1024	2656
146	69	32	4761	1024	2208
147	69	32	4761	1024	2208
148	81	44	6561	1936	3564
149	81	32	6561	1024	2592
150	73	41	5329	1681	2993
151	81	32	6561	1024	2592
152	81	32	6561	1024	2592
153	77	34	5929	1156	2618
154	76	47	5776	2209	3572
155	80	57	6400	3249	4560
156	78	52	6084	2704	4056
157	74	64	5476	4096	4736
158	74	41	5476	1681	3034
159	78	47	6084	2209	3666
160	78	32	6084	1024	2496
161	73	43	5329	1849	3139
162	71	80	5041	6400	5680
163	79	75	6241	5625	5925
164	76	50	5776	2500	3800
165	76	85	5776	7225	6460
166	81	58	6561	3364	4698

167	81	32	6561	1024	2592
168	65	58	4225	3364	3770
169	78	68	6084	4624	5304
170	83	60	6889	3600	4980
171	92	36	8464	1296	3312
172	91	71	8281	5041	6461
173	90	61	8100	3721	5490
174	94	50	8836	2500	4700
175	94	76	8836	5776	7144
176	81	32	6561	1024	2592
177	83	35	6889	1225	2905
178	83	32	6889	1024	2656
179	85	32	7225	1024	2720
180	80	53	6400	2809	4240
181	81	32	6561	1024	2592
182	86	44	7396	1936	3784
183	84	38	7056	1444	3192
184	88	32	7744	1024	2816
185	88	80	7744	6400	7040
186	91	63	8281	3969	5733
187	87	46	7569	2116	4002
188	74	32	5476	1024	2368
189	74	32	5476	1024	2368
190	71	32	5041	1024	2272
191	76	32	5776	1024	2432
192	76	13	5776	169	988
193	84	33	7056	1089	2772
194	78	67	6084	4489	5226
195	69	32	4761	1024	2208
196	71	32	5041	1024	2272
197	81	32	6561	1024	2592
198	81	37	6561	1369	2997
199	80	35	6400	1225	2800
200	81	8	6561	64	648
201	81	34	6561	1156	2754
202	79	20	6241	400	1580
203	75	32	5625	1024	2400
204	74	32	5476	1024	2368
205	81	32	6561	1024	2592
206	81	32	6561	1024	2592
207	84	32	7056	1024	2688
208	65	84	4225	7056	5460
209	74	32	5476	1024	2368
210	75	6	5625	36	450
211	73	38	5329	1444	2774
212	79	5	6241	25	395
213	75	32	5625	1024	2400
214	73	55	5329	3025	4015
215	71	38	5041	1444	2698
216	75	32	5625	1024	2400
217	71	14	5041	196	994
218	77	6	5929	36	462

219	79	3	6241	9	237
220	71	40	5041	1600	2840
221	78	10	6084	100	780
222	74	32	5476	1024	2368
223	78	6	6084	36	468
224	83	8	6889	64	664
225	77	32	5929	1024	2464
226	79	24	6241	576	1896
227	75	69	5625	4761	5175
228	75	23	5625	529	1725
229	73	28	5329	784	2044
230	81	15	6561	225	1215
231	66	81	4356	6561	5346
232	83	53	6889	2809	4399
233	79	31	6241	961	2449
234	78	6	6084	36	468
235	79	58	6241	3364	4582
236	81	50	6561	2500	4050
237	83	27	6889	729	2241
238	86	30	7396	900	2580
239	76	40	5776	1600	3040
240	76	36	5776	1296	2736
241	69	45	4761	2025	3105
242	79	41	6241	1681	3239
243	78	27	6084	729	2106
244	74	74	5476	5476	5476
245	67	63	4489	3969	4221
246	80	39	6400	1521	3120
247	76	87	5776	7569	6612
248	78	52	6084	2704	4056
249	81	38	6561	1444	3078
250	83	50	6889	2500	4150
251	80	32	6400	1024	2560
252	83	35	6889	1225	2905
	X= 19431	Y=9839	X²=1509275	Y²=467455	XY=756621