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STUDY HABITS AND ACADEMIC PERFORMANCE OF SECONDARY SCHOOL STUDENTS IN MATHEMATIC: A CASE STUDY OF SELECTED SECONDARY SCHOOLS IN UYO LOCAL EDUCATION COUNCIL

Abstract: The study examined study habits and academic performance of secondary school students in Mathematics. A case study of selected secondary schools in Uyo Local Education Council. The main purpose of the study was to investigate the relationship between study habits and academic performance of secondary school students in Mathematics. To carry out this study, three research questions and three null hypotheses were raised to guide the study. The population of 1128 Senior Secondary School Two (SS2) students with a sample size of 200 respondents was selected from 5 public secondary schools for the study using simple random sampling technique. A structured questionnaire was used to gather data for the study, which comprises of two sections (A and B), section A comprise of 15 items while section B, comprise of 30 achievement test on mathematics. The reliability coefficient of 0.91 was obtained using spearman Brown formula. Data collected was analyzed using Pearson Product Moment Correlation Co-efficient (PPMC) and tested at 0.05 level of significance. However, the results revealed that there is significance relationship between note taking, students' use of library, time allocation for study and students' academic performance in mathematics. Based on the result of the findings, it was recommended that group guidance should be organized in schools by professional counsellors in order to create awareness on how students can develop effective study habits which could lead to good academic performance in mathematics and a functional school library should be mounted in all the secondary schools in Uyo Local Government Area of Akwalbom State, Nigeria.

Key words: Mathematics, Students Academic Performance and Study Habits.

1. Introduction

Mathematics is a methodical application of matter. It is so said because the subject makes a man methodical or systematic. Mathematics makes our life orderly and prevents chaos. Certain qualities that are nurtured by mathematics are power of reasoning, creativity, abstract or spatial thinking, critical thinking, problem-solving ability and even effective communication skills (Muraina, 2013).

Mathematics is the cradle of all creations, without which the world cannot move an inch. Be it a cook or a farmer, a carpenter or a mechanic, a shopkeeper or a doctor, an engineer or a scientist, a musician or a magician, everyone needs mathematics in their day-to-day life. Even

insects use mathematics in their everyday life for existence. There are countless examples of mathematical patterns in nature's fabric. Anyone can be a mathematician if one is given proper guidance and training in the formative period of one's life. A good curriculum of mathematics is helpful in effective teaching and learning of the subject (Abba, 2007).

According to Abba, (2007) observed that mathematics puzzles and riddles encourage and attract an alert and open-minded attitude among youngsters and help them develop clarity in their thinking. However, emphasis should be laid on development of clear concept in mathematics in a child, right from the primary classes. Another very effective means of spreading the knowledge of mathematics among children is through peer-teaching and encouraging a good study habits among students. Once a child has learned a concept from his teacher, the latter should ask him to explain the same to fellow students. Moreover, in the process all the children will be able to express their doubts on the topic and clear them through discussions in a group (Aremu, 2001). The problems associated with study habits might have a major effect on a student's academic performances, it is believed that everyone has a different study habit and it is important to find out the best personal way to study. Studying with friends has a long way to go in student's study habits, it has a positive influence in which they discuss what have been read together but also has a negative effect in which they might not read but find themselves discussing throughout the stipulated time for reading which boils down to time wastage.

According to Hills (2000), a very good and conducive learning environment encourages students study habit and might have positive impact on their academic performances but students reading in an unfavorable environment might find it difficult to study which may affect their academic achievements. Students with financial constraints might also find it difficult to perform excellently well in their academics. However, students study habit should contribute to their academic performance. Some students do not attend classes, do not take down notes, do not do their assignments, do not read their books or make use of the library. These attitudes may negatively affect their academic performances especially in mathematics. This study intended to identify various study habits used by the students and the relationship with their academic performances. The distressing phenomena: scholastic underperformance and failure have caused serious concern to educationists, guidance counsellors and educational planners for several decades as this amount to colossal wastage of resources available for education. This necessitates serious probe into the causes that underlie and factors that lead to underachievement and failure, so that means could be devised to grapple with this enormous problems.

This is why Aremu (2001) opined that the more mathematical we are in our approach, the more successful we will be. Mathematics offers rationality to our thoughts. It is a tool in our hands to make our life simpler and easier. In support of these assertions, Abba (2007) posited that student should realize and appreciate the beauty of the subject and embrace it with all our heart. It is a talent which should be compulsorily honoured by all in every walk of life. The study habits of students vary from one student to the other and from one place to another. It is an important aspect of learning because students' achievement in schools depends greatly on their study habits. The low understanding level in mathematics has become great concern for our country, parents, educationists and government. The researchers and educationists have made frantic efforts to find out the causes of low achievement in the subject (Muraina, 2013). In spite of all these efforts the problems still persist. According to Hills and Ballou (2000), the study habits of students play a vital role in reflecting the standard of education

and the students' academic performance in mathematics. The students cannot be expected to learn everything needed about the subject from their teachers in the classroom alone, it is the combination of both the classroom learning and out of classroom learning that make up students study habits. The need for effective counselling services among students cannot be overemphasized in order to achieve good academic performances. The students need to be counselled on the need to develop good study habits that will enhance a good academic performance. Okon (2005) observed that students with structured and organized study habit performed well during examinations. He went on to recommend that parents, government and teacher should provide reading materials and a conducive environment for effective learning.

According to, Chukwu (2008) also revealed that effective counselling services will help to promote students adjustment in school and enhance good academic performance. Onwuegbuzie (2001) in his study suggested that guidance services are needed on student study attitude and study habit for a better academic performance. Sorenson (1991), while listing the good basic study habits stated that one must study with the primary aim of understanding. This requires one not to be in a hurry of getting through, rather sustained concentration is necessary. Crow and Crow (2002) stated that effective study habits include plan/place, a definite time table and taking brief of well-organized notes.

Many studies have been carried out by researchers like Adeyemo (2005) and Gbore (2006) on effective study habits. They argue that study habits have strong relationship with the academic performance of students. A student who cultivates certain study habit will perform differently from a student who has another set of study habit. It is believed that student who lacks effective and efficient means of studying would be building on shaking foundation and consequently have weak foundation. The teachers teach all the students collectively but all the students do not have the same grades, here we see underachievers and high achievers in mathematics. With these the teachers get puzzled with the sight of such situations and then try or push too much (Riaz, Asma& Niaz, 2002).

There may be a number of reasons like different levels of intelligence, lack of good infrastructural facilities, and lack of good libraries and so on. But one of the reasons is that students fail to make good an effort to learn what their teachers taught them in the school and also do not study at home because they fail to recognize the importance of study habits to their academic achievement. According to Riaz et al (2002), the study habits of the students could play pivotal role in the learning process reflected in the academic performance of the students in mathematics. Abid (2006) stated that the quality of a nation depends upon the quality of its citizen while quality of citizen depends on the quality of its education which in turn depends on the study habits of the students. Quality of education is reflected through academic achievements which is a function of students' study habits. Therefore, the purpose of this study was to find out if there is a relationship between students' study habits and their academic performance in mathematics in Uyo Local Education Committee.

2. Statement of the Problem

There is public outcry on the standard of education system and poor academic performance of students in Uyo Local Government Area. This is manifested in external examinations like West Africa Examination Council (WAEC) and University Tertiary Matriculation Examination (UTME) and others external examination. This has drawn the interest of educationists and

they tend to shift the blame on the teaching methodology adopted by the teachers and lack of fund from the government to provide quality textbooks. Poor study habit among students contribute to the massive failure recorded in just concluded Senior School Certificate Examination. As a result of poor study habit among students, the issue of examinations malpractice, failure, school drop-out etc are on the increase.

Therefore, the main problem of this study is to examine the relationship between note-taking, use of library, time allocation and academic performance of students in mathematics in secondary in Uyo Local Government Area of Akwalbom State.

3. Purpose of the Study

The main purpose of this study was to examine the relationship between study habits and academic performance of students in mathematics in secondary schools. Specifically, the study sought to:

- i. Examine the relationship between notes taking and student's academic performance in mathematics.
- ii. Examine the relationship between use of library and students' academic performance in mathematics.
- iii. Examine the relationship between time allocation to study and student's academic performance in mathematics.

4. Research Questions

In this study, the following research questions were raised to guide the study.

1. Is there any significant relationship between notes taking and student's academic performance in mathematics?
2. Is there any significant relationship between student's use of library and their academic performance in mathematics?
3. Is there any relationship between time allocation to study and student's academic performance in mathematics?

5. Research Hypotheses

In this study, three null hypotheses were raised and tested at 0.05 level of significance thus:

Ho1: There is no significant relationship between notes taking and academic performance of students in mathematics.

Ho2: There is no significant relationship between students use of library and their academic performance in mathematics.

Ho3: There is no significant relationship between time allocation to study and students academic performance in mathematics.

6. Significance of the Study

The study when completed would be benefited to the following individual: students, teachers, parents, ministry of education and the general public.

The result of the finding would enable students to develop good habits which could lead to good academic performance in mathematics. The study would expose student to different ways of taking note in the class and this would enable them to develop good strategies which could lead to good academic performance in mathematics, such techniques include; the use of abbreviation, paying in the class and many others.

The result of the finding would help sensitize parents on how to encourage their children to develop effective study habit through the information that would be provided in the study.

Teachers would see the result of the finding useful especially in discharging their duties in the school. This would be achieved through the accurate information that would be provided in the study.

The study would enable the ministry of education to initiate programmes that would facilitate effective habits among students in the school. Such programmes includes: implementation of guidance and counselling services in school etc.

Finally, the result of the finding would encourage members of the public to motivate their wards to take their education very important and discourage laziness, examination malpractice and other anti-social vices among students in their communities.

7. Methodology

The researcher adopted the descriptive survey design. This research design permits the researcher to describe the relationship between study habit and academic performance of student in mathematics. Descriptive survey design enables the researcher to investigate the events or things that existed at the time the research is conducted (Obodoeze, 2009).The sample of this study consisted of 200 Senior Secondary School Two (SS2) students from five public secondary schools. In each sampled school, 40 students were selected to take part as respondents.

8. Instrumentation

The researcher developed an instrument for data collection called “study habit and academic performance questionnaire (SHAPQ) and Achievement Test in Mathematics (ATM)”. Experts in Test and Evaluation in the Department of Educational Foundation, Guidance and Counseling, Faculty of Education, University of Uyo, critically scrutinized the contents of the questionnaire. The validators effected necessary corrections on the draft copy before accepting it suitable for further procedures. The questionnaire comprised of two sections, A and B. Section A comprised of items on the personal data of the respondent while, section B comprised of 45 items on study habits, with a breakdown of five items on note-taking, five items on the use of library, five items on time allocation and thirty items on achievement test on mathematics. The instrument had a 4–point rating scale as follows: Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD).

9. Result presentation

Hypothesis 1 (Ho₁): There is no significant relationship between notes taking and academic performance of students in mathematics.

Table 1: Pearson Product Moment Correlation Co-efficient of the responses on the relationship between notes taking and academic performance of students in mathematics.

Variable	N	$\sum x$	$\sum x^2$	$\sum xy$	r-cal	r-crit	df	Decision
Note taking			630	163700				
Academic Performance In mathematics		200			14888	0.910	0.139	198
			543	136686				

Field Work, 2017 Significant at $p < 0.05$, $r\text{-cal} = 0.910$, $r\text{-crit} = 0.139$, $df = 198$

Table 1 shows the calculated Pearson product value of 0.910 is greater than the critical value of 0.139 at 0.05 level of significance and with 198 degree of freedom. This implies that the null hypothesis which states that there is no significant relationship between notes taking and academic performance of students in mathematics was rejected; hence, the alternate hypothesis which states that, there is a significant relationship between notes taking and academic performance of students in mathematics was retained. Therefore, there is a significant relationship between notes taking and academic performance of students in mathematics, in secondary schools in Uyo Local Education Council of Akwalbom State.

Hypothesis (Ho₂): There is no significant relationship between students' use of library and their academic performance in mathematics

Table 2: Pearson Product Moment Correlation Co-efficient Analysis of the responses on the relationship between students' use of library and their academic performance in mathematics

Variable	N	$\sum x$	$\sum x^2$	$\sum xy$	r-cal	r-crit	df
Note taking							
Academic Performance In mathematics		730	226300				
		200		204581	2.9	0.139	198
		0.05					
		600	183350				

Field Work, 2017 Significant at $p < 0.05$, $r\text{-cal} = 2.9$, $r\text{-crit} = 0.139$, $df = 198$

Table 2 indicates that the calculated Pearson product value of 2.9 is greater than the critical value of 0.139 at 0.05 level of significance and with 198 degree of freedom. This implies that the null hypothesis which states there is no significant relationship between students use of library and their academic performance in mathematics was rejected, hence, the alternate hypothesis which states that, there is a significant relationship between students use of library and their academic performance in mathematics was retained. Therefore, there is a significant relationship between students' use of library and their academic performance in mathematics in secondary schools in Uyo Local Education Council in Akwalbom State.

Table 3: Pearson Product Moment Correlation Co-efficient of the analysis of the relationship between time allocation for study and students academic performance in mathematics

Variable	N	Σx	Σx^2	Σxy	r-cal	r-crit	df
Decision		Σy	Σy^2				
Note taking	200	970	302500	212950	0.98	0.139	198
Academic performance in mathematics	0.05	646	155026				

Field Work, 2017 Significant at $p < 0.05$, $r\text{-cal} = 0.98$, $r\text{-crit} = 0.139$, $df = 198$

Table 3 shows that the calculated value of Pearson Product value of 0.98 is greater than the critical value of 0.139 at 0.05 level of significance and with 198 degree of freedom. This implies that the null hypothesis which states there is no significant relationship between time allocation for study and students academic performance in mathematics was rejected, thus, the alternate hypothesis which states that, there is a significant relationship between time allocation for study and students academic performance in mathematics was retained. Therefore, there is a significant relationship between time allocation for study and students academic performance in mathematics in secondary schools in Uyo Local Education Council in Akwalbom State.

10. Discussion of Findings

This section handled the discussion of findings based on the data analysis and result of this study.

Result in table 1 revealed that there is a significant relationship between notes taking and academic performance of students in mathematics.

This result is in line with earlier study done by Osa (2012) who opined that notes taking is one of the activities that can aid learning and remembering as well as academic success. Notes taking and writing or listening to the teacher and putting down point can enable the students to achieve good academic success. The finding in this study also supported by Bacquiran (2011) who opined that a student who pays attention to his teacher and take good notes is likely to perform well than those who do not. Therefore, it is deduced that there is a significant relationship between notes taking and students' academic performance in mathematics in Uyo Local Education Council in Akwalbom State.

Result in table 2 revealed that, there is a significant relationship between students' use of library and their academic performance in mathematics.

This result of the finding agrees with the view of Isaac (2011) who posited that, a school library promotes the development of study habits among students. The use of library by the students would enable the students to acquire new skills, knowledge and idea which could foster good academic performance in mathematics. This is the view of Etuk (2005) who observed that, school library provides a framework for academic achievement and increase student's

chances of success in institution of higher education or other professional pursuits. Based on this discussion, it is deduced that students who utilize the library resources are likely to achieve good academic results than those who do not. Therefore, there is a significant relationship between students' use of library and their academic performance in mathematics.

Result in table 3 also showed that there is a significant relationship between time allocation for study and students' academic performance in mathematics.

The result of finding corroborates the opinion of Onu (2016) who opined that time allocation for study has to do the process of organizing one's activities to achieve the best results within the available times. This is also the view of Okobiah and Okorodudu (2006) who claimed that students should be conscious of how their time is utilized and not just letting them waste away. Therefore, it is worthy of note to say that, there is a significant relationship between time allocation for study and students' academic performance in mathematics in secondary schools in Uyo Local Education Council in Akwalbom State.

11. Recommendations

The following recommendations were made based on the findings of this study:

1. Group guidance should be organized in schools by professional counsellors in order to create awareness on how students can develop effective study habits which could lead to good academic performance in mathematics.
2. A functional school library should be mounted in all secondary schools in Uyo Local Education Council in Akwalbom State. By so doing, students would be motivated to utilize the library resources and thus, inculcating in them good study habits.
3. Parents and guardians should encourage their children to set up schedules for study and they should allow give their children enough time to study at home.
4. Qualified mathematics teachers should be employed in all secondary schools in Uyo Local Education Council of Akwalbom State. If this is done, students would acquire enough knowledge's, ideas and skills on how to tackle mathematical problems and this would improve their academic performance in this subject.
5. The teachers should teachthe student on how to take important notes during every lesson. By so doing, the students would develop good habits of note taking and this could lead to good academic performance in mathematics.
6. Guardian counselors should organized orientation to students on how to developed effective notes taking and time management skills. This would have to facilitate effective study habits among students.

12. Conclusion

Based on the findings of this study, it is concluded that there is a significance relationship between note taking, students' use of library, time allocation for study and students' academic performance in mathematics in secondary schools (SS2) student in Uyo, Local Education Council in Akwalbom State.

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APPENDIX A
STUDY HABITS AND ACADEMIC PERFORMANCE OF SECONDARY SCHOOL STUDENTS IN MATHEMATICS.
A CASE STUDY OF SELECTED SECONDARY SCHOOLS IN UYO EDUCATION COUNCIL

Departmental of Educational Foundations,
 Guidance and Counselling,
 Faculty of Education,
 University of Uyo, Uyo.

Dear Respondents,

I am a final year student of the above mentioned Department/Faculty. I am carrying out a research on the topic “Study Habits and Academic Performance of Secondary School Students in Mathematics. A Case Study of Selected Schools in Uyo Education Council District.”

Your honest responses to the items are solicited. This is purely an academic exercise; information given will be treated confidently.

Yours faithfully,

Abisola, Oladeni Sakirudeen
 (Researcher)

SECTION A: STUDENTS’ PERSONAL DATA

Instruction: Please tick () in the boxes provided as it applies to you.

1. Age: (A) 13 – 15 (B) 16 – 18 (C) 19 and above
2. Class:.....
3. Gender: (A) Male (B) Female

SECTION B

Instruction: Please tick as appropriate to suit your choice of option/level of agreement or disagreement with the statements.

- Strongly Agree - SA
 Agree - A
 Disagree - D
 Strongly Disagree - SD

S/N	ITEMS	SA	A	D	SD
NOTE TAKING					
1.	I used to listen attentively while taking down notes in the class.				
2.	I always pay attention in the class in order to take any important notes.				
3.	I have developed skills for effective note taking during every lesson.				
4.	I always take down note to preserve new knowledge.				
5.	Most times, I use symbols to express what my teacher say in the class.				
USE OF LIBRARY					
6.	I have devoted interest in library resources utilization.				
7.	I study in the library every day.				
8.	I used to do my assignment in the school library.				
9.	My school library gives me access to variety of resources.				
10.	I make use of the library to expand the scope of my study.				

TIME ALLOCATION TO STUDY					
11.	I have a private study time table				
12.	I schedule my time to cover all subjects				
13.	I devote extra-time to thoroughly learn a certain subject like mathematics.				
14.	I use clock alarm to alert me for night reading				
15.	I set up time for other social activities so that they won't interfere with my studies				

SECTION B

ACHIEVEMENT TEST IN MATHEMATICS

Instruction: Each question is followed by four options lettered A to D. Find the correct option for each question and shade it.

- The ages, in years, of four boys are 10, 12, 14 and 18. What is the average of the boys.
 - 12 years
 - $12\frac{1}{2}$ Years
 - 13 years
 - $13\frac{1}{2}$ years
- What sum of money will be amount to D10,400.00 in 5 years at 6% simple interest?
 - D 8,000
 - D10,000
 - D12,000
 - D16,000

Use the table below to answer question 3

Age (years)	13	14	15	16	17
Frequency	10	24	8	5	3

- How many students are in the club?
 - 50
 - 55
 - 60
 - 65
- What is the Median Age?
 - 13
 - 14
 - 15
 - 16
- What is the Mode?
 - 14
 - 13
 - 15
 - 16
- Simplify $\left(\frac{10\sqrt{3}}{\sqrt{5}} - \sqrt{15}\right)^2$
 - 75.00
 - 15.00
 - 8.66
 - 3.87

7. The distance, d , through which a stone falls from rest varies directly as the square of the time, t , taken. If the stone falls 45cm in 3 seconds, how far will it fall in 6 seconds?
 (a) 90cm
 (b) 135cm
 (c) 180cm
 (d) 225cm
8. Which of the following is a valid conclusion from the premise: "Nigerian footballers are good footballers"?
 (a) Joseph plays football in Nigeria therefore he is a good footballer
 (b) Joseph is a good footballer therefore he is a Nigerian footballer
 (c) Joseph is a Nigerian footballer therefore he is a good footballer.
 (d) Joseph plays good football therefore he is a Nigerian footballer.
9. On a map, 1cm represents 5km. find the area on the map that represents 100km².
 (a) 2cm²
 (b) 4cm²
 (c) 8cm²
 (d) 16cm²
10. Simplify: $3^{n-1} \times 27^{n+1}$
 (a) 3^{2n}
 (b) 9
 (c) 3^n
 (d) 3^{n+1}
11. What sum of money will amount to D10,400 in 5 years at 6% simple interest?
 (a) D8,000.00
 (b) D10,000.00
 (c) D12,000.00
 (d) D16,000.00
12. The roots of a quadratic equation are $\frac{4}{3}$ and $-\frac{3}{7}$. Find the equation.
 (a) $21x^2 - 19x - 12 = 0$
 (b) $21x^2 + 37x - 12 = 0$
 (c) $21x^2 - x - 12 = 0$
 (d) $21x^2 + 7x - 4 = 0$
13. Find the values of y for which the expression $\frac{y^2 - 9y + 18}{y^2 + 4y - 21}$
 (a) 6, -7
 (b) 3, -6
 (c) 3, -7
 (d) -3, -7
14. Given that $2x + y = 7$ and $3x - 2y = 3$, by how much is $7x$ greater than 10?
 (a) 1
 (b) 3
 (c) 7
 (d) 17

15. Simplify $\frac{2}{1-x} - \frac{1}{x}$.
- (a) $\frac{x+1}{x(1-x)}$
- (b) $\frac{3x-1}{x(1-x)}$
- (c) $\frac{3x+1}{x(1-x)}$
- (d) $\frac{x-1}{x(1-x)}$
16. Make s the subject of the relation: $s = s + \frac{sm^2}{mr}$.
- (a) $s = \frac{mrp}{mr+m^2}$
- (b) $s = \frac{mr+m^2}{mrp}$
- (c) $s = \frac{mrp}{mr+m^2}$
- (d) $s = \frac{mrp}{mr+m^2}$
17. Factorize: $(2x+3y)^2 - (x-4y)^2$
- (a) $(3x-y)(x+7y)$
- (b) $(3x+y)(2x-7y)$
- (c) $(3x+y)(x-7y)$
- (d) $(3x-y)(2x+7y)$
18. The curved surface area of a cylinder, 5cm high, is 110cm^2 . Find the radius of its base.
Take $\pi = \frac{22}{7}$
- (a) 2.6cm
- (b) 3.5cm
- (c) 3.6cm
- (d) 7.0cm
19. The volume of a pyramid with height 15cm is 90cm^3 . If its base is a rectangle with dimensions x cm by 6 cm, find the value of x .
- (a) 3
- (b) 5
- (c) 6
- (d) 8
20. Kweku walked 8m up a slope and was 3m above the ground. If he walks 12m further up the slope, how far above ground will he be?
- (a) 4.5m
- (b) 6.0m
- (c) 7.5m

- (d) 9.0m
21. Calculate the gradient of the line PQ.
- (a) $\frac{3}{5}$
- (b) $\frac{2}{3}$
- (c) $\frac{3}{2}$
- (d) $\frac{5}{3}$

22. Calculate the length PQ.
- (a) $4\sqrt{11}$
- (b) $4\sqrt{10}$
- (c) $2\sqrt{17}$
- (d) $2\sqrt{13}$
- (e)

Age (years)	13	14	15	16	17
Frequency	10	24	8	5	3

The table shows the ages of students in a club. Use it to answer questions 23 and 24.

23. How many students are in the club?
- (a) 50
- (b) 55
- (c) 60
- (d) 65
24. Find the median age.
- (a) 13
- (b) 14
- (c) 15
- (d) 16
25. A fair die is thrown two times. What is the probability that the sum of the scores is at least 10?
- (a) $\frac{5}{36}$
- (b) $\frac{11}{36}$
- (c) $\frac{18}{36}$
- (d) $\frac{2}{3}$
26. The marks of eight students in a test are: 10, 4, 5, 3, 14, 13, 16 and 7. Find the range.
- (a) 16
- (b) 14
- (c) 13
- (d) 11
27. If $\log_2(3x - 1) = 5$, find x.
- (a) 2.00
- (b) 3.67

- (c) 8.67
(d) 11.00
28. A sphere of a radius r cm has the same volume as a cylinder of radius 3 cm and height 4 cm. Find the value of r .
(a) $\frac{2}{3}$
(b) 2
(c) 3
(d) 6
29. Express 1975 correct to 2 significant figures.
(a) 20
(b) 1,900
(c) 1,980
(d) 2,000
30. The perimeter of a sector of a circle of radius 21cm is 64cm. Find the angle of the sector.
(a) 70°
(b) 60°
(c) 55°
(d) 42°

APPENDIX B

Reliability Coefficient

The reliability coefficient was obtained using split halves method. Spearman Brown formula was used to compute the reliability co-efficient as follows:

$$\frac{2 \times \text{reliability}^{\frac{1}{2}}}{1 + \text{reliability}^{\frac{1}{2}}}$$

$$\frac{2 \times 0.85}{1 + 0.85}$$

$$\frac{1.7}{1.85}$$

Therefore, the reliability coefficient = 0.91

Biographical notes:

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