

11.9 MATHEMATICS



THE KENYA NATIONAL EXAMINATIONS COUNCIL



KCPE 2015

5031115

MATHEMATICS

Time: 2 hours

INSTRUCTIONS TO CANDIDATES (Please read these instructions carefully)

1. You have been given this question booklet and a separate answer sheet. The question booklet contains 50 questions.
2. Do any necessary rough work in this booklet.
3. When you have chosen your answer, mark it on the **ANSWER SHEET**, not in this question booklet.

HOW TO USE THE ANSWER SHEET

4. Use only an ordinary pencil.
5. Make sure you have written on the answer sheet:

YOUR INDEX NUMBER
YOUR NAME
NAME OF YOUR SCHOOL
6. By drawing a **dark line** inside the correct numbered boxes mark your full Index Number (i.e. School Code Number and the three-figure Candidate's Number) in the grid near the top of the answer sheet.
7. Do not make any marks outside the boxes.
8. Keep the sheet as clean as possible and do not fold it.
9. For each of the questions 1–50 four answers are given. The answers are lettered A, B, C and D. In each case only **ONE** of the four answers is correct. Choose the correct answer.
10. On the answer sheet the correct answer is to be shown by drawing a **dark line** inside the box in which the letter you have chosen is written.

Example:

In the Question Booklet:

11. What is the value of $\frac{6(24 - 18) + 6 \times 4}{6}$?

- A. 30
B. 25
C. 10
D. 28

The correct answer is C (10).

On the answer sheet:

1 1A 1B 1C 1D 11 11A 11B 11C 11D 21 21A 21B 21C 21D 31 31A 31B 31C 31D 41 41A 41B 41C 41D

In the set of boxes numbered **11**, the box with the letter C printed in it is marked.

11. Your dark line **MUST** be within the box.
12. For each question **ONLY ONE** box is to be marked in each set of four boxes.



This question paper consists of 16 printed pages.

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TURN OVER

Working Space

1. What is 6090428 written in words?
 - A. Sixty million ninety thousand four hundred and twenty eight.
 - B. Six million ninety thousand four hundred and twenty eight.
 - C. Sixty million nine thousand four hundred and twenty eight.
 - D. Six million nine thousand four hundred and twenty eight.

2. What is the value of $\frac{549 - 243 \div 27}{27}$?
 - A. 540
 - B. $\frac{34}{81}$
 - C. $182\frac{2}{3}$
 - D. 20

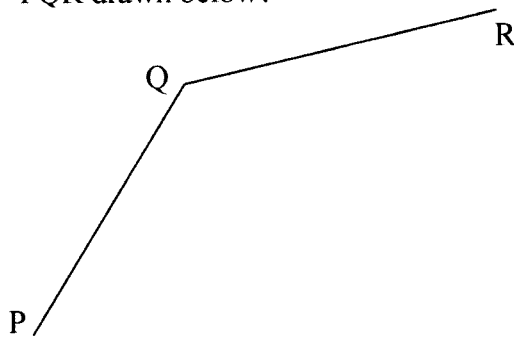
3. What is the value of $\frac{5}{6} + 1\frac{3}{4} \div \frac{7}{12} - \frac{1}{3}$?
 - A. $3\frac{1}{2}$
 - B. $1\frac{25}{48}$
 - C. $4\frac{2}{21}$
 - D. $10\frac{1}{3}$

4. What is the value of $0.204 \div (0.02 \times 0.17)$?
 - A. 0.06
 - B. 0.6
 - C. 6
 - D. 60

5. What is 2806198 rounded off to the nearest tens?
 - A. 2806190
 - B. 2806210
 - C. 2806208
 - D. 2806200

Working Space

6. What is the measure of the reflex angle PQR drawn below?



- A. 315°
 B. 225°
 C. 135°
 D. 45°
7. What is the difference in the value of the square root of $2\frac{14}{25}$ and the square of $\frac{2}{5}$?
- A. $2\frac{2}{5}$
 B. $1\frac{19}{25}$
 C. $1\frac{11}{25}$
 D. $1\frac{1}{5}$
8. In a kiosk the prices of food were shown as follows:

Price of Items in Shillings

Item	Tea	Andazi	Beef Stew	Fish	Ugali	Chapati	Githeri
Price	20	10	80	75	25	20	40

- Three boys ordered *beef stew*, *ugali* and a cup of *tea* each while eight girls ordered *fish* and *chapati* each. What was their total bill?
- A. sh 220
 B. sh 1075
 C. sh 1135
 D. sh 1295
9. What is the simplified form of the expression $3(3x - y + 1) + 2(3y - x + 4)$?
- A. $8x + 5y + 5$
 B. $11x + 9y + 11$
 C. $7x + 3y + 11$
 D. $2x + 2y + 10$

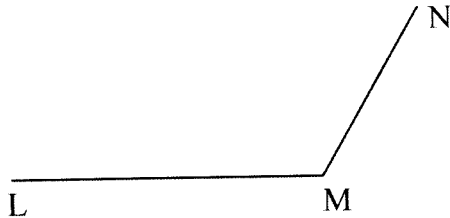
Working Space

10. A strip of metal was painted in three different colours. Two fifths of the strip was painted white, $\frac{1}{8}$ of the strip was painted green and the remaining part was painted black. Which is the correct order of writing the fractions of the strip, painted from the smallest to the largest?
- A. $\frac{1}{8}, \frac{2}{5}, \frac{19}{40}$
 B. $\frac{19}{40}, \frac{2}{5}, \frac{1}{8}$
 C. $\frac{1}{8}, \frac{19}{40}, \frac{2}{5}$
 D. $\frac{2}{5}, \frac{1}{8}, \frac{19}{40}$
11. Mwakio fenced a rectangular piece of land measuring 15 m and 31 m. He used six strands of wire, leaving a space of 5 m for the gate. What was the total length of the wire used?
- A. 552 m
 B. 522 m
 C. 547 m
 D. 87 m
12. The price of an item was reduced by sh 360. This represented a 20% discount. What was the price of the item after the discount?
- A. sh 450
 B. sh 1 440
 C. sh 1 800
 D. sh 2 160
13. What is the next number in the pattern 5, 13, 25, 41, 61, _____?
- A. 102
 B. 85
 C. 81
 D. 65
14. What is the value of $\frac{S(T - R)^2}{T + R^2}$ if $S = 3, R = 4, T = 9$?
- A. $1\frac{2}{13}$
 B. $1\frac{13}{17}$
 C. 3
 D. 9

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15. The figure below is an incomplete parallelogram KLMN. Complete the parallelogram.



What is the length of the diagonal KM in centimetres?

- A. 2.5
 - B. 4.0
 - C. 5.7
 - D. 3.5
16. The marked price of a T.V set is sh 20 000. A 20% discount is allowed when buying the T.V. on cash. On hire purchase terms, only 12 monthly installments of sh 2 000 each is paid. How much more does it cost to buy the T.V. set on hire purchase terms than cash?
- A. sh 24 000
 - B. sh 16 000
 - C. sh 8 000
 - D. sh 4 000
17. Ngenya refuels his car after every two days, Kerubo refuels hers after every four days while Masai refuels his after every eight days. If they all refuelled their cars on 3rd March 2013, on which date did they refuel their cars together again?
- A. 17th March
 - B. 11th March
 - C. 7th March
 - D. 5th March

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- 18.** Pupils contributed some money to help needy people. They bought twenty four 2-kg packets of flour, thirty six 1-kg packets of flour and a fifty kilogram bag of sugar. The flour was packed in 500 g packets and the sugar in 250 g packets. How many people got both a packet of flour and a packet of sugar?
- A. 368
B. 200
C. 168
D. 120
- 19.** A sales girl earns a salary of sh 3 000 per month plus a commission of 5% on the value of goods she sells above sh 10 000. In a certain month, she earned a total of sh 7 000. What was the value of goods she sold that month?
- A. sh 70 000
B. sh 80 000
C. sh 90 000
D. sh 140 000
- 20.** The table below shows arrival and departure times for buses from a certain company serving route P to T.

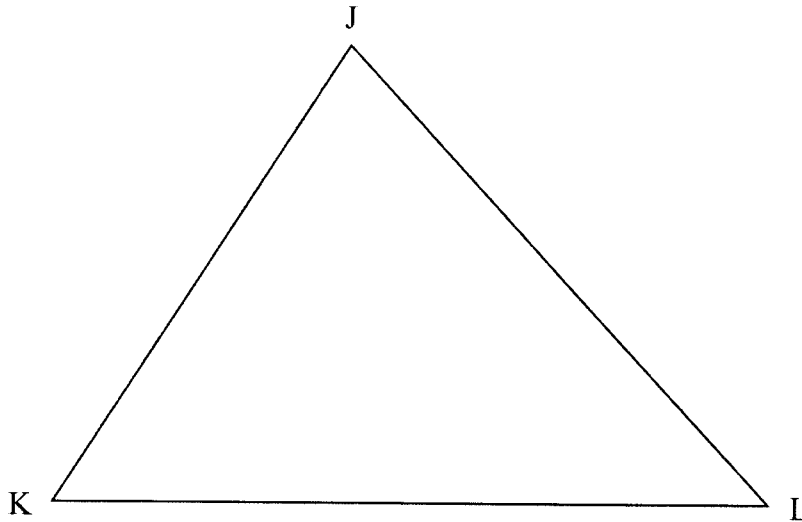
Town	Arrival Time	Departure Time
P		7.30 a.m.
Q	8.30 a.m.	9.00 a.m.
R	11.30 a.m.	11.45 a.m.
S	1.45 p.m.	1.55 p.m.
T	4.15 p.m.	

- How long does a bus take to travel from town Q to town S?
- A. 4 h 45 min
B. 4 h 55 min
C. 5 h 15 min
D. 5 h 25 min
- 21.** The volume of water in a pond is 1084 m^3 . What is the amount of water in litres?
- A. 10840000
B. 1084000
C. 108400
D. 10840

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22. In the triangle JKL below, construct the perpendicular bisectors of lines JL and KL to meet at point M. Join ML.

Working Space

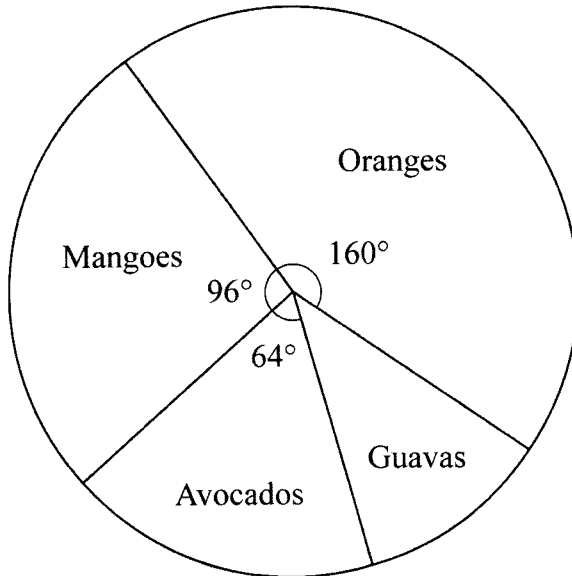


- What is the length of line ML?
- A. 1.2 cm
 - B. 2.5 cm
 - C. 8.0 cm
 - D. 4.8 cm
23. The mean of five numbers is 9. Four of the numbers are 5, 10, 5 and 14. What is the median of the five numbers?
- A. 5
 - B. 9
 - C. 10
 - D. 11
24. The price of an item increased from sh 400 to sh 500. What was the percentage increase?
- A. 125%
 - B. 80%
 - C. 25%
 - D. 20%

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25. The pie-chart below shows the angles of the sectors representing the different types of fruits sold by Mwanaisha.



If she sold 50 guavas, how many more mangoes than guavas did she sell?

- A. 30
B. 70
C. 120
D. 150
26. The area of the curved surface of a cylinder is 1320 cm^2 . The height of the cylinder is 10 cm. What is the radius of the cylinder in centimetres? (Take $\pi = \frac{22}{7}$)
- A. 21
B. 42
C. 84
D. 132
27. What is the value of n in the inequality $14n + 9 < 41 - 6n$?
- A. $n < 6\frac{1}{4}$
B. $n < 4$
C. $n < 2\frac{1}{2}$
D. $n < 1\frac{3}{5}$

Working Space

Working Space

28. The table below shows the number of patients who attended a clinic on certain days of the week. The number of male patients on Friday and that of children on Wednesday are not recorded.

Days			
Patients	Monday	Wednesday	Friday
Male	63	87	
Female	81	74	56
Children	110		59

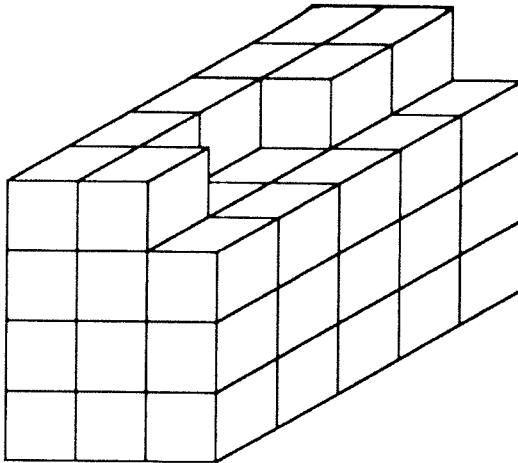
- A total of 623 patients attended the clinic that week. The number of patients who attended the clinic on Wednesday was 226. How many more children than male patients attended the clinic that week?
- A. 19
B. 23
C. 37
D. 56
29. What is the difference in value between the largest and the smallest 6-digit number formed using the digits 3, 0, 4, 5, 2, 9?
- A. 954320
B. 203459
C. 930861
D. 750861
30. Akello and Muhu shared some oranges in the ratio 4:5 respectively. Muhu received 3 more oranges than Akello. How many oranges did Akello get?
- A. 9
B. 12
C. 15
D. 27
31. A mother shared part of her money to three children Senda, Mila and Kilo. Mila received $\frac{1}{3}$ while Kilo received $\frac{1}{5}$ of the money. Senda received $\frac{1}{2}$ of the remainder. What fraction of the money was shared out?
- A. $\frac{7}{30}$
B. $\frac{7}{15}$
C. $\frac{8}{15}$
D. $\frac{23}{30}$

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32. Which one of the following sets of measurements will form a right angled triangle when constructed?
- A. 3 cm, 5 cm, 6 cm
 - B. 4 cm, 6 cm, 15 cm
 - C. 8 cm, 12 cm, 15 cm
 - D. 6 cm, 8 cm, 10 cm
33. How many blocks are used to make the stack drawn below?

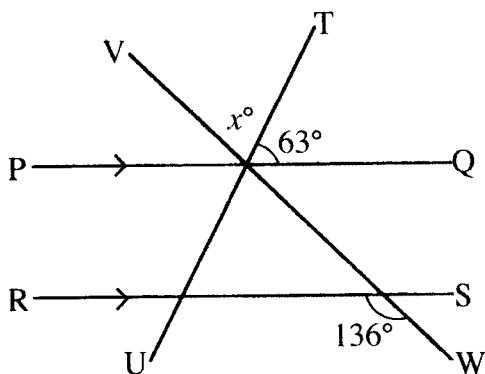


- A. 60
 - B. 55
 - C. 53
 - D. 45
34. An aeroplane reached its destination on a Wednesday at 0115h. The flight had taken $4\frac{1}{2}$ hours. On what day and at what time in a.m./p.m. system did the plane start its flight?
- A. Tuesday 8.45 a.m.
 - B. Tuesday 8.45 p.m.
 - C. Wednesday 8.45 a.m.
 - D. Wednesday 8.45 p.m.
35. A piece of land in the shape of a trapezium is drawn on a map using the scale 1:500. The parallel sides are 5 cm and 2 cm, while the perpendicular distance between parallel sides is 4 cm. What is the actual area of the plot in m^2 ?
- A. 35000
 - B. 3500
 - C. 350
 - D. 35

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36. In the figure below PQ is parallel to RS. UT and VW are straight lines.



What is the size of the angle marked x° ?

- A. 44°
 - B. 73°
 - C. 107°
 - D. 117°
37. In a certain country, the population of goats is 51907. The number of female goats is 453 more than that of male goats. The number of male goats is 18549 and the rest are kids. What is the number of kids?
- A. 14356
 - B. 15262
 - C. 19002
 - D. 32905

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38. The table below shows the postal charges, in shillings, on small packets in a certain year.

Working Space

Mass of Packet	East Africa	Rest of Africa	Rest of the World
Not over 20 g	39.00	44.00	58.00
Not over 100 g	88.00	160.00	144.00
Not over 250 g	177.00	204.00	265.00
Not over 500 g	309.00	365.00	472.00
Not over 1 kg	519.00	608.00	758.00
Not over 2 kg	718.00	840.00	1 099.00
Each additional 1 kg up to 5 kg	354.00	420.00	543.00

Abbas from Mombasa sent the following packets:

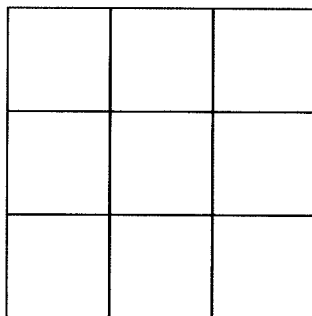
A 900 g packet to Uganda

A 5 kg packet to Ghana

A 251 g packet to China

How much money did he pay altogether?

- A. sh 3 091
 B. sh 2 884
 C. sh 2 881
 D. sh 1 831
39. Six men can complete digging a shamba in 8 days. How many days will it take four men, working at the same rate, to complete digging the shamba?
- A. 12
 B. $5\frac{1}{3}$
 C. 4
 D. 3
40. The figure below is made up of squares.



How many squares are there altogether?

- A. 14
 B. 13
 C. 10
 D. 9

Working Space

41. The prices of items sold in a shop were as follows:

1 kg sugar @ sh 120

1 kg rice @ sh 160

1 kg cooking fat @ sh 144

1 loaf of bread @ sh 45

Subira bought 2 kg of sugar, 1 kg of rice, $\frac{1}{2}$ kg of cooking fat and 3 loaves of bread.

She gave the shopkeeper a sh 1 000 note.

What balance did she get?

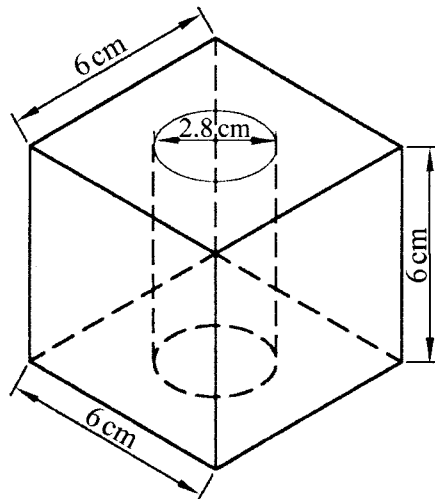
A. sh 321

B. sh 393

C. sh 531

D. sh 607

42. The diagram below represents a solid cube of side 6 cm from which a cylinder of diameter 2.8 cm has been removed.



What is the volume of the remaining solid in cm^3 ? (Take $\pi = \frac{22}{7}$)

A. 36.96

B. 68.16

C. 179.04

D. 216.0

43. A plot of land is in the shape of a rhombus of side 200 m. The length of one of the diagonals is 240 m. What is the area of the plot in hectares?

A. 3.84

B. 4

C. 4.8

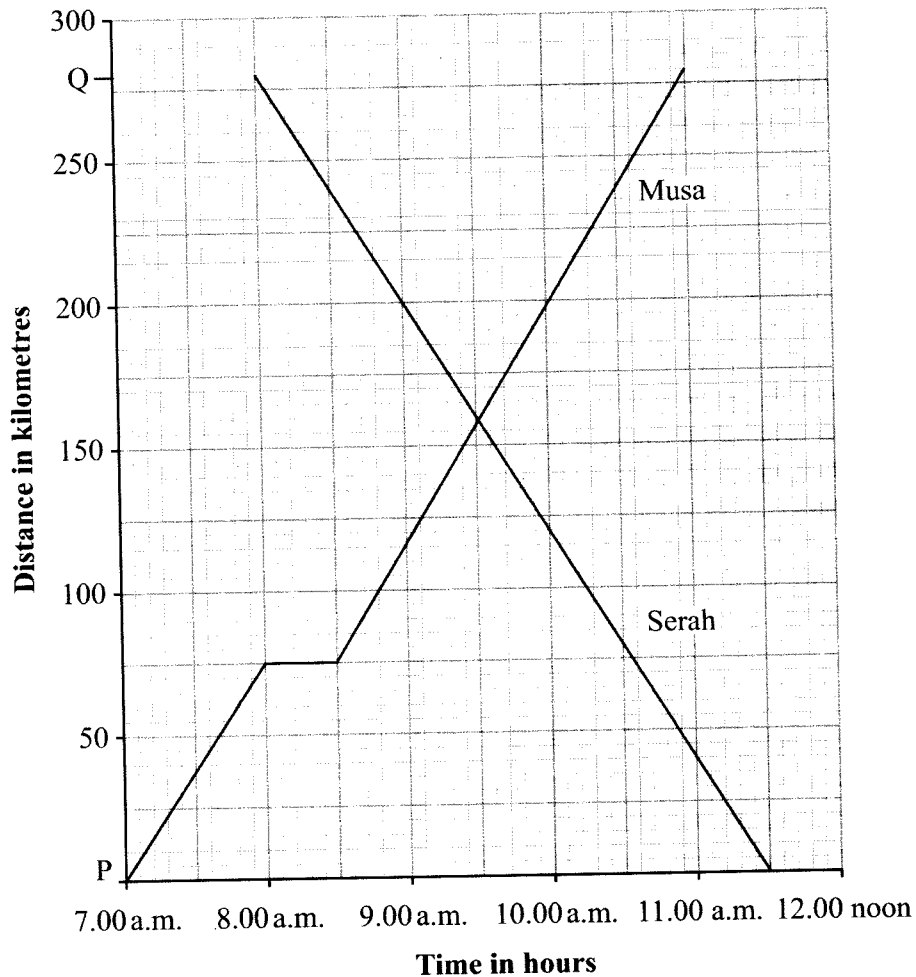
D. 7.68

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44. Ndemo bought $2r$ oranges while Maua bought $4s$ oranges. Haifa bought 2 oranges more than a half the total number of oranges bought by both Ndemo and Maua. How many oranges did they buy altogether?
- A. $3r + 6s + 2$
 B. $4r + 8s + 2$
 C. $6r + 12s + 2$
 D. $3r + 6s - 2$
45. The graph below shows journeys of Musa and Serah. Musa travelled from P to Q while Serah travelled from Q to P.



What was the difference in their average speeds?

- A. 0
 B. 10
 C. 70
 D. 80

Working Space

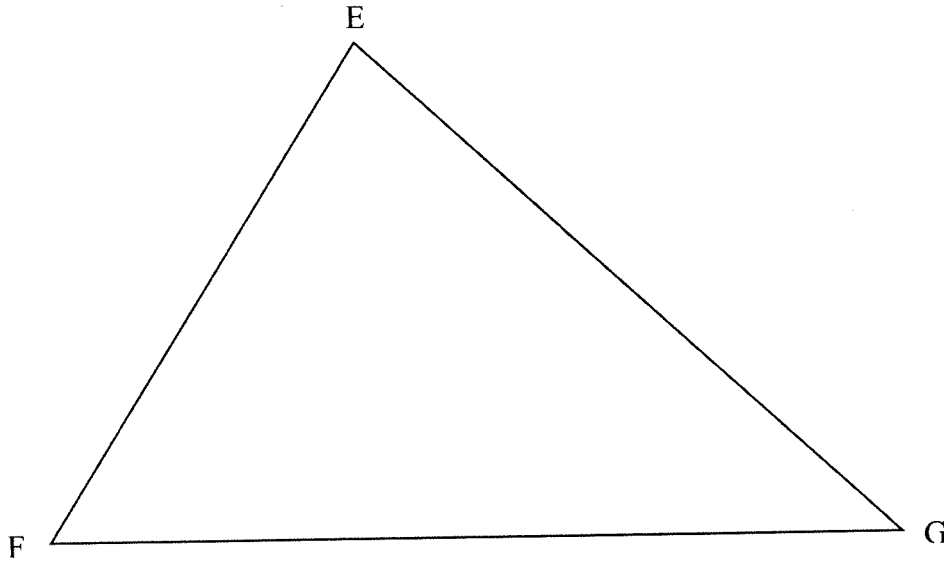
- 46.** On a certain day a miller prepared 63 kilograms of *uji* flour and 286 kilograms of *ugali* flour. The miller charged sh 7 per kilogram of *uji* flour and sh 4 per kilogram of *ugali* flour. The mill consumed 7 litres of fuel costing sh 108 per litre. The miller also paid sh 250 as wages and sh 300 as loan repayment.
What was the miller's profit that day?
- A. sh 279
B. sh 579
C. sh 927
D. sh 948
- 47.** Mundia bought 90 bananas for sh 450. After selling all the bananas he made a profit of 60%. What was the selling price per banana?
- A. sh 5
B. sh 8
C. sh 270
D. sh 720
- 48.** Ngoko deposited sh 120 000 in a bank that gave compound interest at the rate of 6% per annum. What was the amount in the bank after 2 years?
- A. sh 134 832
B. sh 134 400
C. sh 127 200
D. sh 14 832
- 49.** Senteu left home at 6.00 a.m. for school which is 8 km away. He cycled at a speed of 6 km/h. After cycling for 4 km the bicycle had a puncture which took him 15 minutes to repair. He continued cycling at the same speed. At what time did he arrive at school?
- A. 6.40 a.m.
B. 6.55 a.m.
C. 7.20 a.m.
D. 7.35 a.m.

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50. In the triangle EFG shown below, construct a circle that touches the sides of the triangle.

Working Space



What is the radius of the circle, in centimetres?

- A. 2.5
- B. 5.0
- C. 5.6
- D. 11.2

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