Candidate's Name		**Assessment Number**	
School Name		**School Code**	
Candidate's Signature		**Date**	

THE KENYA NATIONAL EXAMINATIONS COUNCIL
KENYA JUNIOR SCHOOL EDUCATION ASSESSMENT

KJSEA
903
MATHEMATICS
SAMPLE PAPER
JANUARY 2025
Time: 2 hours

INSTRUCTIONS TO CANDIDATES

1. Write your **name** and **assessment number** in the spaces provided above.
2. Write the **name** and **code of your school** in the spaces provided above.
3. **Sign** and write the **date** of the assessment in the spaces provided above.
4. This question paper consists of **TWO** sections: **A** and **B.**
5. Answer ALL the questions in section A on the separate **ANSWER SHEET** provided.
6. Answer ALL the questions in section B in the spaces provided in this **QUESTION PAPER**.
7. Show all the workings in section B in the spaces provided.
8. Non-programmable calculators may be used, except where stated otherwise.
9. Give non-exact numerical answers, correct to 3 significant figures, and one decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
10. For π, use either the calculator value or 3.142.
11. Do **NOT** remove any page from this question paper.
12. Answer **ALL** the questions in **English.**

For official use only
SECTION B

Task	Question Numbers						Total score
Task 1	Question	21	22	23	24	25	**Max. 20**
	Score						
Task 2	Question			26	27	28	**Max. 10**
	Score						
Task 3	Question	29	30	31	32	33	**Max. 22**
	Score						
Task 4	Question	34	35	36	37	38	**Max. 20**
	Score						
Task 5	Question				39	40	**Max. 8**
	Score						

This paper consists of 18 printed pages.
Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A (20 marks)

1. You have been given this question paper and a separate answer sheet. Answer All the questions in Section A on the separate answer sheet provided.
2. When you have chosen your answer, mark it on the **ANSWER SHEET,** not in this question paper.

HOW TO USE THE ANSWER SHEET

3. Use an ordinary HB pencil.
4. Confirm that the answer sheet you have been provided with has the following:

YOUR ASSESSMENT NUMBER
YOUR NAME
NAME OF YOUR SCHOOL
NAME OF THE SUBJECT

5. Keep the answer sheet clean, dry and **DO NOT** fold it.
6. For each of the questions **1 – 20,** 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.
7. On the answer sheet, the correct option 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:

14. A cultural show was attended by 986 male adults, 2807 female adults and 5145 children. How many more children than adults attended the show?

A. 4159
B. 3793
C. 2338
D. 1352

The correct answer is **D**.

8. **On the answer sheet**, in the set of boxes given for number **14**, draw a **dark line** inside the box with the letter D printed in it as indicated below.

14. [A] [B] [C] [~~D~~]

9. Your **dark line MUST** be inside the box.

10. For each question, **ONLY ONE** box is to be marked in each set of four boxes.

1. Sarah recorded the following numbers in a field book

$$\frac{1}{2},\ 5\frac{1}{2},\ -8,\ 0.6$$

Which of the numbers is an integer?

A. $5\frac{1}{2}$
B. 0.6
C. $\frac{1}{2}$
D. -8

2. Three buckets have capacities of 16 litres, 12 litres and 20 litres. The buckets were filled with water using a container. What is the capacity of the largest container that was used to fill each of the buckets in an exact number of times?

A. 4 litres
B. 48 litres
C. 60 litres
D. 240 litres

3. A farmer harvested 2486712 pieces of pineapples. What is the number rounded off to the nearest hundred thousands?

A. 2000000
B. 2400000
C. 2490000
D. 2500000

Working Space

4. The price of a litre of petrol at a petrol station was Ksh 199.08. David wrote the price to 2 significant figures. Which of the following is the price to 2 significant figures?

A. Ksh 19
B. Ksh 20
C. Ksh 200
D. Ksh 200.0

5. Peter worked out a question on indices and got the answer as p^2. Which of the following is equivalent to p^2?

A. $p^4 \times p^2$
B. $p^4 \div p^2$
C. $(p^4)^2$
D. $p^4 - p^2$

6. The equation of a line was given as $4x - 3y - 7 = 0$. What is the gradient of the line?

A. 4

B. 3

C. $\frac{4}{3}$

D. $\frac{3}{4}$

7. Joel requires at least 20 minutes to walk from home to school. Let *x* represent the time taken by Joel to walk from home to school. Which of the following inequalities represents the time taken by Joel?

A. $x < 20$
B. $x > 20$
C. $x \geq 20$
D. $x \leq 20$

Working Space

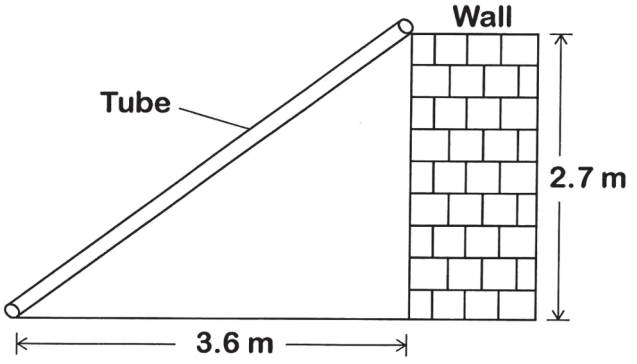
8. Otieno and Karisa bought pens, exercise books and pencils at the beginning of the term. The number of pens, exercise books and pencils bought by each was represented by the matrix below.

$$\begin{pmatrix} 6 & 13 & 3 \\ 5 & 12 & 4 \end{pmatrix}.$$

What was the order of the matrix?

A. 2×3
B. 3×2
C. 2×2
D. 3×3

9. Winnie placed a tube against a wall as shown.



The top of the tube was 2.7 m from the bottom of the wall. The foot of the tube was 3.6 m from the wall. Which of the following calculations will give the length of the tube?

A. $\sqrt{(3.6^2 + 2.7^2)}$
B. $\sqrt{(3.6 + 2.7)^2}$
C. $\sqrt{(3.6^2 - 2.7^2)}$
D. $\sqrt{(3.6 + 2.7)}$

Working Space

10. Anne made a semi-circular table cloth. The diameter of the table cloth was 42 cm. She binded the edge of the table cloth with a ribbon. What was the length of the ribbon used?

A. 174 cm
B. 108 cm
C. 66 cm
D. 33 cm

11. A milk company sells yoghurt in cylindrical cups. Each cup has a diameter of 7 cm and a height of 10 cm.
The company sold 385 litres of yoghurt.
How many cups of yoghurt were sold?

A. 100
B. 250
C. 1000
D. 1750

12. Nyaboke walked from her home to the market. She walked at a speed of 4 km/h and took 30 minutes to reach the market. On her way back, she took 40 minutes to reach home. What was Nyaboke's speed on her way back?

A. 2 km/h
B. 3 km/h
C. 6 km/h
D. 12 km/h

13. Mueni measured the temperature of a liquid as 48°C. Which of the following calculations gives the correct temperature in Kelvin?

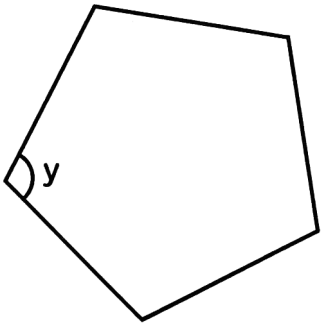
A. $273 + 48$
B. $273 - 48$
C. $273 \div 48$
D. 273×48

Working Space

14. A shop allowed a 10% discount on all items sold. Ahmed bought a shirt at sh 720 from the shop. Which calculation gives the marked price of the shirt?

A. sh 720 × 0.9
B. sh 720 × 1.1
C. sh 720 ÷ 1.1
D. sh 720 ÷ 0.9

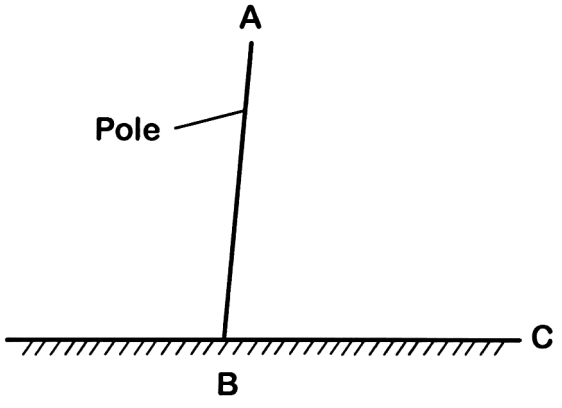
15. The base of a litter bin is in the shape of a regular pentagon as shown.



Determine the size of the angle marked y.

A. 60°
B. 72°
C. 108°
D. 120°

16. A pole is erected on a flat ground. It forms an angle ABC with the ground as shown.



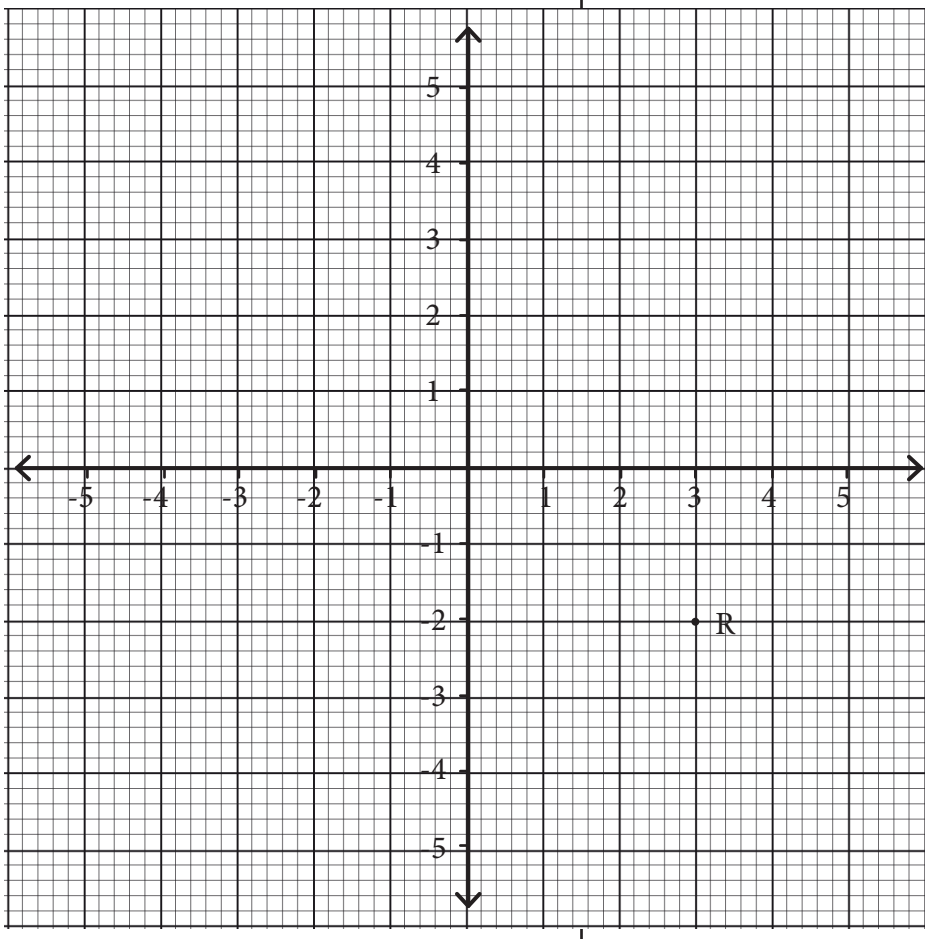
What is the size of angle ABC?

A. 80°
B. 85°
C. 90°
D. 95°

Working Space

17. Rehema plotted a point R on the cartesian plane as shown.

Working Space



What are the coordinates of point R?

A. (3, 2)
B. (3, -2)
C. (-3, -2)
D. (-2, 3)

18. A surveyor wrote the length of a piece of land as 70 m. She represented the length as 2.8cm on a map. What was the scale used on the map?

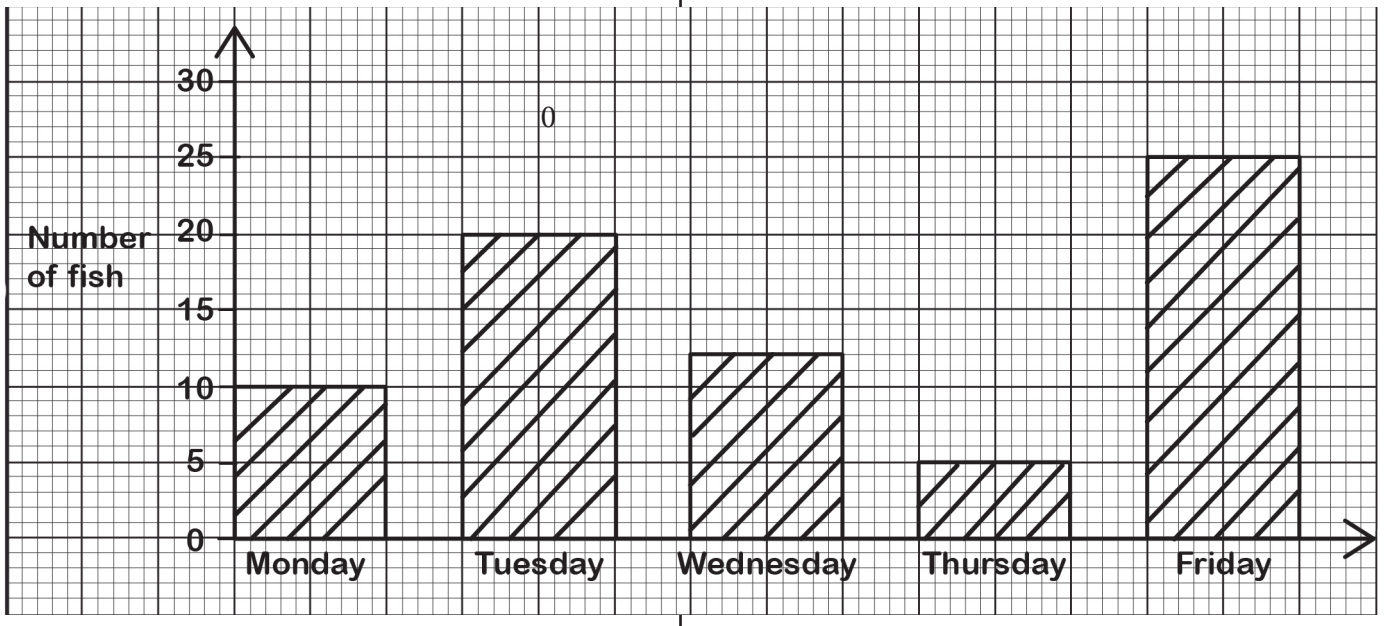
A. 1 : 25
B. 1 : 250
C. 1 : 25000
D. 1 : 2500

19. A painter placed a 3.2m long ladder at an angle of 30° with a vertical wall. What was the distance from the bottom of the ladder from to the foot of the wall?

A. 6.4 m
B. 2.8 m
C. 1.8 m
D. 1.6 m

Working Space

20. The number of fish sold by a fish monger was represented in a bar graph as shown.



On which two consecutive days did the fish monger sell the highest number of fish?

A. Tuesday and Wednesday
B. Monday and Tuesday
C. Wednesday and Thursday
D. Thursday and Friday

SECTION B (80 marks)

*Answer **all** the questions in the spaces provided.*

21. A cooperative society received 18357248 cartons of avocados from farmers in one season. How many times is the total value of digit 3 greater than the total value of digit 2 in the number? (4 marks)

22. A fisherman on a boat saw a fish at a depth of 5 m. He noticed a bird vertically above the fish at a height of 12 m from the water surface. Use a number line to determine the distance between the fish and the bird. (3 marks)

23. A school bought some rice to be used for 6 days. On the first day, the school used $\frac{1}{6}$ of the rice. On the second day, $\frac{1}{5}$ of the remaining rice was used. The rest of the rice was shared equally for the last 4 days. On the last day the school used 37.5 kg.

Determine:

(a) the fraction of rice that was shared equally for the last 4 days; (2 marks)

(b) the mass of rice that the school had bought. (3 marks)

24. A wall is in the shape of a square. Each side of the wall is 15 metres. The wall is covered with square tiles each 50 cm long. Determine the number of tiles used. (5 marks)

25. Katana employed 4 men to weed his farm in 18 days. Determine the number of men Katana would need to weed the farm in 8 days. (3 marks)

26. Amina shared some money among her 3 children, Mohammed, Fatuma and Hussein. Mohammed received 3 times the amount of money that Fatuma received. Hussein received sh 7000 more than Fatuma. If Fatuma received sh x, write a simplified expression for the total amount of money that Amina shared. (3 marks)

27. Mary bought 3 packets of milk and 4 loaves of bread for sh 570 from a shop. Jane bought 5 packets of milk and a loaf of bread for sh 440 from the same shop. Determine the cost of a loaf of bread and the cost of a packet of milk. (5 marks)

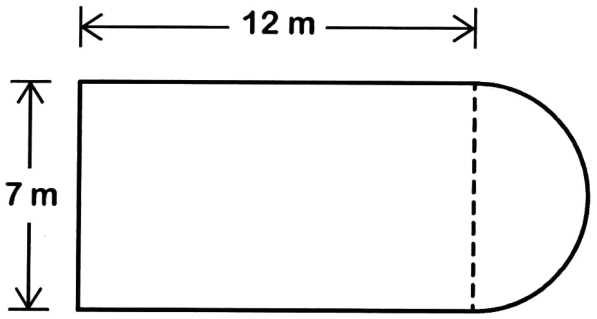
28. A trader sells *g* goats every week. The number of goats he sells each week is more than 8 but less than or equal to 15. Write a compound inequality to represent this information. (2 marks)

29. Kamau took part in a 10000 m race. After running a distance of 72.8 Hectometre(Hm), he fell and could not complete the race.

(a) What distance, in metres, had he covered before he fell? (2 marks)

(b) What distance, in Decametres, was remaining for Kamau to complete the race? (3 marks)

30. The floor of a swimming pool in a hotel was made up of a rectangular part and semi circular part. The figure below represents the floor of the swimming pool.



Determine the area covered by the floor of the swimming pool. (5 marks)

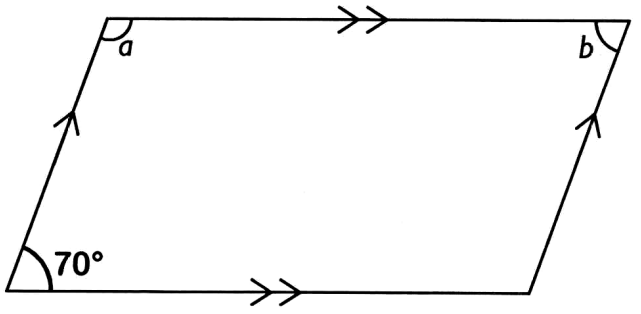
31. A cylindrical tank of diameter 5.6 m contains water to a height of 2.5 m. The water was transferred to a rectangular tank of length 5.5 m and width 4 m. What was the height of the water in the rectangular tank? (4 marks)

32. A half marathon race is 21 km long. Peter ran the race in 1 hour 40 minutes.
Determine Peter's speed in m/s. (4 marks)

33. Sam gets a commission of 2% for every car sold. In a certain month, he sold 6 cars. The selling price of each car was sh 890 000. Calculate the commission Sam earned that month.

(4 marks)

34. A welder designed a window frame in the shape of a parallelogram as shown.



Giving reasons, determine the sizes of angles *a* and *b*. (4 marks)

35. A carpenter designed a coffee table with a triangular table top. A model of the table top was a triangle NPQ such that PQ = 7 cm, NQ = 9 cm. and angle NPQ = 60°.

(a) Using a ruler and a pair of compasses only, construct triangle NPQ. (3 marks)

(b) (i) Measure the size of angle PQN. (1 mark)

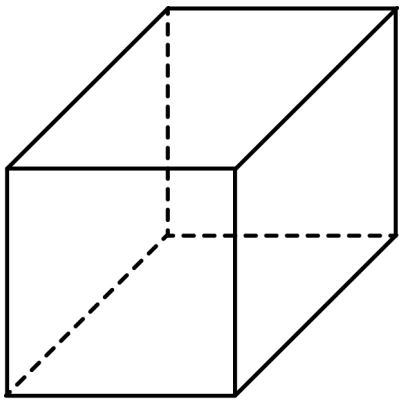
(ii) Measure the length PN. (1 mark)

36. A surveyor recorded the measurements of a garden in a field book as shown below.

	Y	
	30	
B7	25	
	10	12A
	X	

The measurements were given in metres. Using a scale of 1cm to represent 2m, draw the map of the garden. (4 marks)

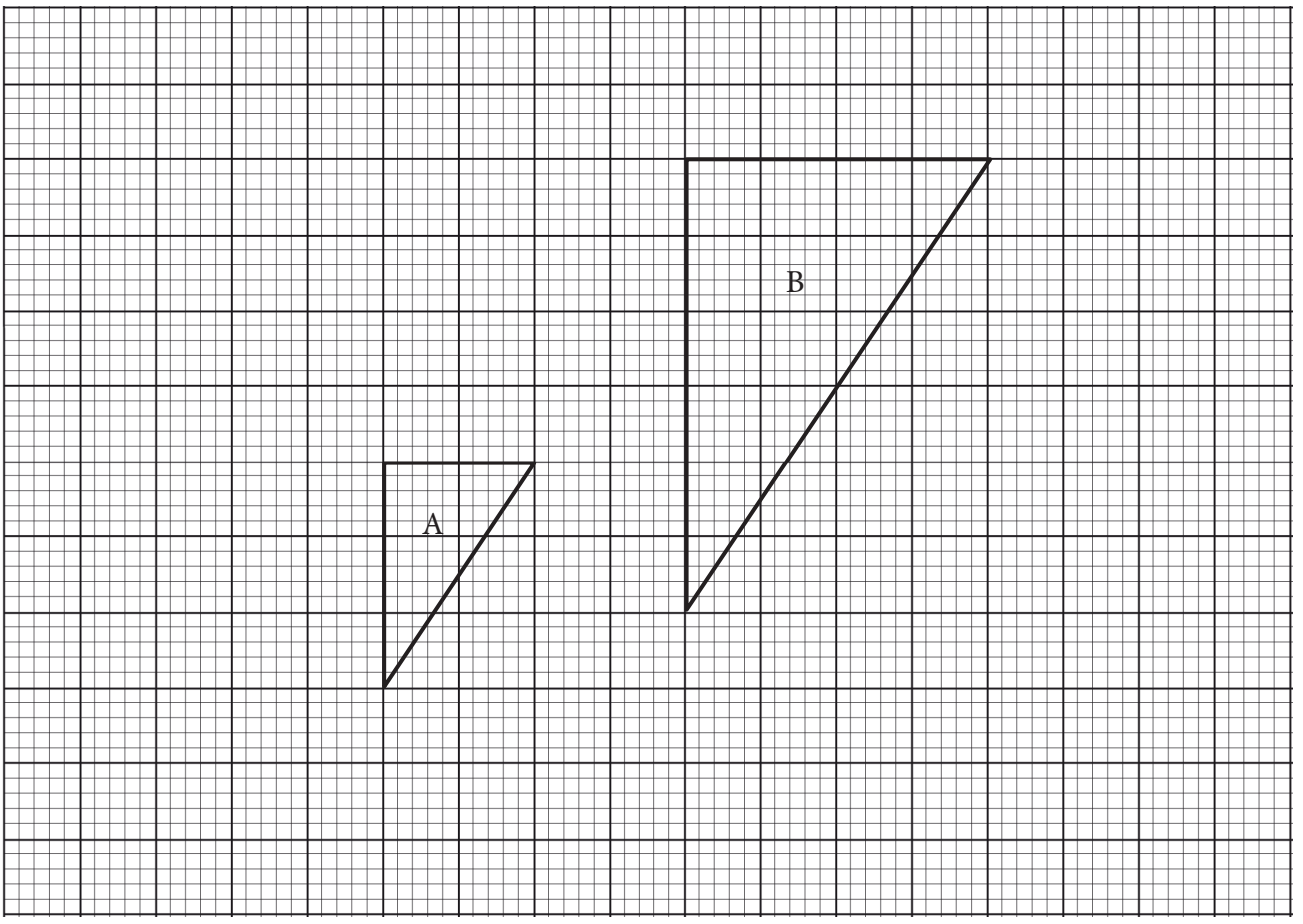
37. Grade 8 learners were learning about the nets of solids. The teacher gave the learners a model of a cube of side 3 cm. The figure below shows the cube.



(a) Draw the net of the cube. (2 marks)

(b) Use the net to work out the surface area of the cube. (2marks)

38. Two triangles A and B are drawn in a grid as shown. Triangle B is an enlargement of triangle A



(a) Determine the scale factor of the enlagement. (2 marks)

(b) On the grid, mark point X, the centre of the enlargement. (1 mark)

39. The number of learners selected to represent their school in various ball games was recorded as shown in the table below.

Game	Football	Netball	Volleyball	Handball	Basketball
Number of learners	18	12	10	9	11

Represent the number of learners selected for each game on a pie chart. (5 marks)

40. A teacher wrote the numbers from 10 to 20 on number cards and asked a Grade 9 learner to select a card at random. Determine the probability that the number of the card picked is:

(a) a prime number; (2 marks)

(b) an even number. (1 mark)

THIS IS THE LAST PRINTED PAGE.