KENYA JUNIOR SCHOOL EDUCATION ASSESSMENT (KJSEA)

GRADE 8: MATHEMATICS

CODE: 010 YEAR: 2025 **TIME: 2 HOURS**

Candidate's Name: MARKING SCHEME **Assessment Number:** _____

School Name: _____ **School Code:** _____

Candidate's Signature: JSS **Date:** _____

INSTRUCTIONS TO CANDIDATES:

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1. Write your name and class in the spaces provided above.
2. The paper consists of two sections: Section A and Section B.
3. Answer ALL questions in Section A and Section B.
4. Show all your working in the spaces provided.
5. All questions carry marks as indicated.
6. Mathematical tables and electronic calculators may be used.

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For Official Use Only			
Task	**Task 1**	**Task 2**	**TOTAL**
Question	1	2	3QUESTIONS
Maximum Score	20	10	30 MARKS
Candidate's Score			

This paper consists of **17 printed pages.** Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

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SECTION A: (20 Marks)
Answer all questions

1. What is the value of:
   $-15+24-(-12)$?
   ~~A. 21~~
   B. –3
   C. 27
   D. 51

   A

2. Write 0.375 as a fraction in its simplest form.
   ~~A. 3/8~~
   B. 37/100
   C. 75/200
   D. 15/40

   A

3. Which one of the following is the square root of 1,296?
   A. 34
   ~~B. 36~~
   C. 32
   D. 38

   B

4. The mean of the numbers 8, 10, 12, 14, and x is 12. Find the value of x.
   A. 14
   ~~B. 16~~
   C. 18
   D. 20

   B

5. A car travels 180 km in 3 hours. What is its average speed?
   A. 30 km/h
   ~~B. 60~~ km/h
   C. 90 km/h
   D. 120 km/h

   B

6. Express 420 as a product of its prime factors.
   ~~A. $2^2\times3\times5\times7$~~
   B. $2\times3\times5\times7$
   C. $2\times3^2\times5\times7$
   D. $2\times3\times5^2\times7$

   A

WORKING SPACE.

BODMAS.

$-15+24+12$ $\quad \begin{array}{r} 24 \\ 12 \\ \hline 36 \end{array}$

$36-15$

$21 = 21$

$\frac{375}{1000} = \frac{75}{200} = \frac{15}{40} = \frac{3}{8}$

$\sqrt{1296} = 36$

$\frac{8+10+12+14+x}{5} = 12$

$44+x = 12\times5$

$44+x = 60-44$

$x = 16$

$S = D/T \Rightarrow \frac{180\,km}{3h} = 60$

$420 = 2\times210$
$= 2\times2\times105$
$= 2\times2\times3\times35$
$= 2\times2\times3\times5\times7$
$= 2^2\times3\times5\times7$

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7. A trader sells a radio for Ksh 4,800 making a profit of 20%. What was the cost price?

A. Ksh 3,600
B. Ksh 4,000
C. Ksh 3,800
D. Ksh 4,200

B

8. Solve for x:

$5x-7=18$

A. 3 B. 4 C. 5 D. 6

C

9. Factorise:

$x^2-7x+10$

A. $(x-2)(x-5)$
B. $(x-1)(x-10)$
C. $(x+2)(x-5)$
D. $(x-10)(x+1)$

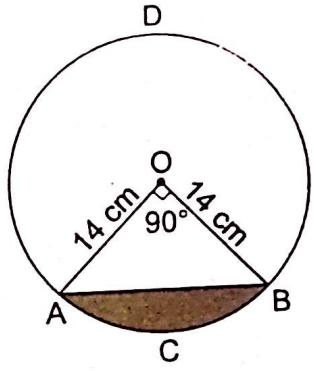
A.

10. The circumference of a circle is 44 cm. Find its diameter. (Take $\pi = \frac{22}{7}$).

A. 7 cm B. 14 cm C. 21 cm D. 28 cm

B

11. The diagram below shows a sector of a circle of radius 14 cm and angle 90°.



Find the area of the sector.

A. 49 cm²
B. 77 cm²
C. 154 cm²
D. 308 cm²

C

WORKING SPACE.

120 | . = 4800
100 | . +
40

$\frac{100 \times 4800}{120} = \text{sh } 4000$

$5x - 7 = 18 + 7$

$\frac{5x}{5} = \frac{25}{5}$ $x = 5$

$x^2 - 7x + 10$
P 10
S -7
N -5, -2

$x^2 - 5x - 2x + 10$
$x(x-5) - 2(x-5)$
$(x-2)(x-5)$

$C = \pi D$

$\frac{7}{22} \times 44 = \frac{22}{7} D \times \frac{7}{22}$ $D = 44^2 \times \frac{7}{22}$

$= 14\text{cm}.$

Area of triangle.

$\frac{1}{2} b \times h \Rightarrow \frac{1}{2} \times 14 \times 14$

14
7
98 98cm^2

Area of sector.

$\frac{\theta}{360} \pi r^2 \Rightarrow \frac{90}{360} \times \frac{22}{7} \times 14 \times 14$

14
11
14
14
154 $= 154\text{cm}^2$.

Area of shaded part $154 - 98$

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12. The sum of the interior angles of a polygon is 1,260°. How many sides does the polygon have?

A. 7
~~B. 9~~ B
C. 11
D. 12

Sum of Interior $\angle = (n-2)180$

$1260 = 360 + 180n - 360$

WORKING SPACE.

$\frac{1260+360}{180} = \frac{180n}{180}$

$n = 9$.

13. The marked price of a television is Ksh 24,000. A customer is allowed a discount of 10%. How much does he pay?

~~A.~~ Ksh 21,600
B. Ksh 22,000
C. Ksh 23,000
D. Ksh 21,000 A

M.P 24,000 | 100% = 24,000
discount 10% | 90% ↓

$\frac{90\% \times 24,000}{100} = \frac{2400}{2160}$

= Sh. 21,600

14. A salesman earns a commission of 7.5% on sales. If he sells goods worth Ksh 80,000, his commission is:

A. Ksh 6,000 B. Ksh 6,200
C. Ksh 6,400 D. Ksh 6,600 A

100% = 80,000
92.5% ↓

$\frac{92.5 \times 80,000}{100}$ 24, 9250, 8, 74,000

80,000 − 74,000 = Sh. 6,000

100.10
7.5
92.5

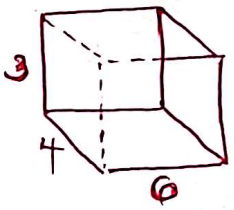
15. Which line is parallel to the y-axis?

x	3	3
y	1	2

~~A.~~ x = 3 B. y = 3
C. y = x + 3 D. y = −x A

16. A cuboid has dimensions 6 cm × 4 cm × 3 cm. Its total surface area is:

A. 72 cm² ~~B.~~ 108 cm² C. 94 cm² D. 132 cm² B

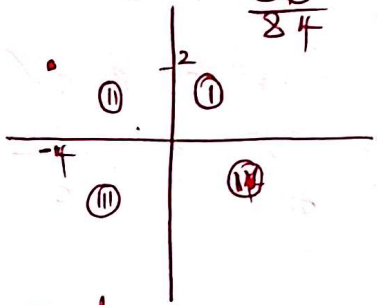


6×4 = 24×2 = 48 cm²
6×3 = 18×2 = 36 cm²
4×3 = 12×2 = 24 cm²

48, 36, 24 → 84, 24 → 108 cm²

17. The coordinates of A are (−4, 2). In which quadrant is point A?

A. I ~~B.~~ II C. III D. IV B



quadrant 2

18. Cylinder has a radius of 7 cm and a height of 15 cm. Find its volume. (Take π = 22/7).

A. 1,540 cm³ ~~B.~~ 2,310 cm³
C. 3,300 cm³ D. 2,3100 cm³ B

Cylinder.
$V = \pi r^2 h$

$\frac{22}{7} \times 7 \times 7 \times 15$

22, 7 → 154; 154, 15 → 770, 1540 → 2310

$= 2310\ cm^3$

19. The table below shows the number of pens sold by a shopkeeper in one week.

Day	Mon	Tue	Wed	Thu	Fri	Sat
Pens	10	14	8	16	12	20

What is the mean number of pens sold per day?

A. 12

~~B.~~ 13.3

C. 14

D. 15

B

WORKING SPACE.

$\text{mean} = \frac{10+14+8+16+12+20}{6}$

13 rem 2

80

ϕ_1 13.3

20. A map is drawn to a scale of 1:200,000. If the distance between two towns on the map is 7.5 cm, what is the actual distance in km?

A. 7.5 km

~~B.~~ 15 km

C. 120 km

D. 150 km

B

1 : 200,000

7.5 × 200,000

1500000 cm

1km = 100,000 cm

× 1500000 cm

$\frac{1\text{km} \times 1500000\text{cm}}{100,000\text{cm}}$

= 15km

SECTION B: Structured Questions (80 marks)

21. Simplify: (6 marks)

$\frac{3}{4} \div \frac{5}{8}$

Hence, evaluate:

$\frac{3}{4} \div \frac{5}{8} \times \frac{2}{3}$.

$\frac{3}{\cancel{4}_{1}} \times \frac{\overset{2}{\cancel{8}}}{5} = \frac{6}{5}$

$\frac{\overset{2}{\cancel{6}}}{5} \times \frac{2}{\cancel{3}} = \frac{4}{5}$

22. Solve for x and y: (6 marks)

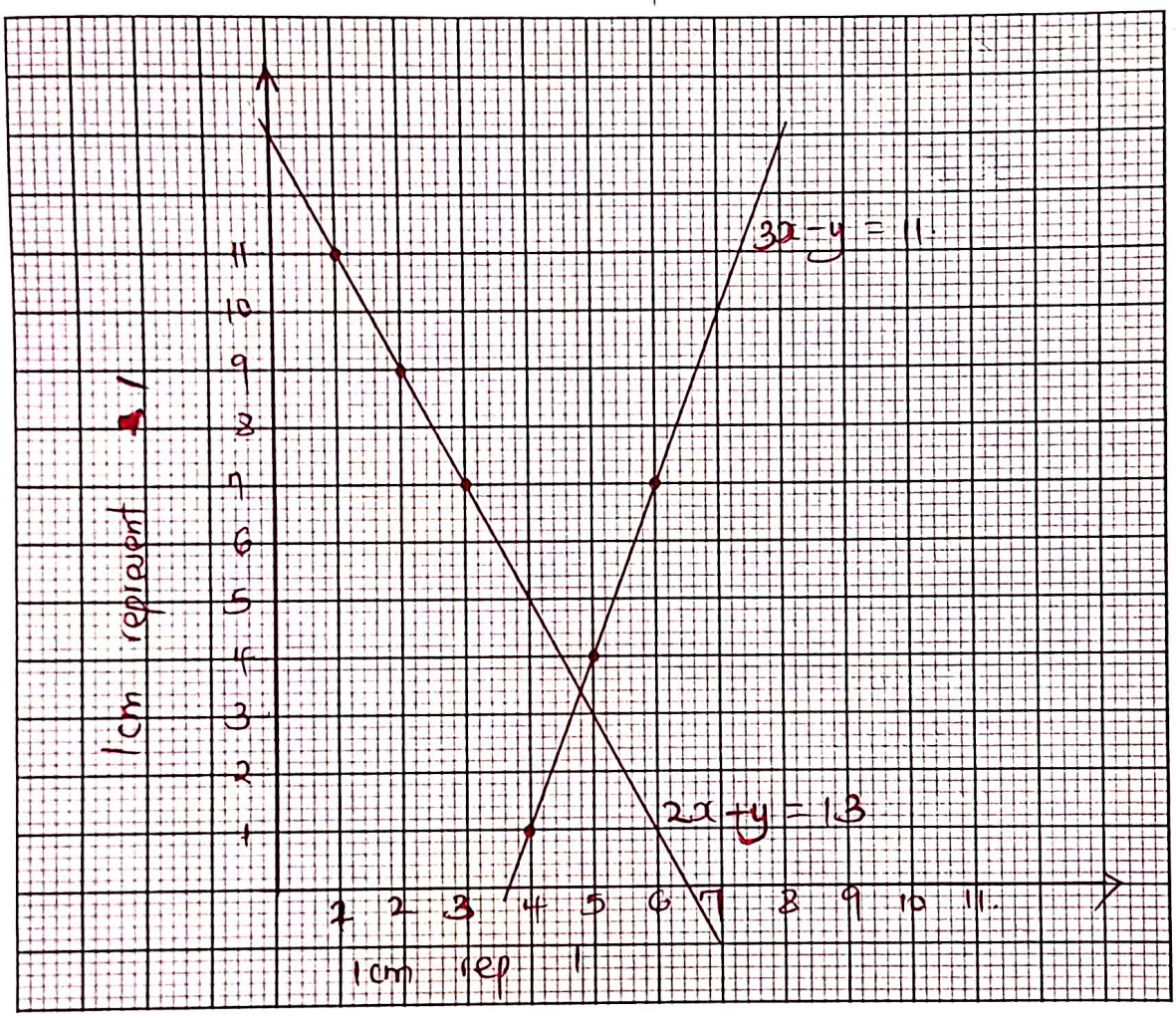
2x+y=13
3x– y = 11

$2x + y = 13$

x	1	2	3
y	11	9	7

$3x - y = 11$

x	1	2	3
y	-8	-5	-2



$3x - y = 11$

x	4	5	6
y	1	4	7

$x = 4.8$

and

$y = 3.4$

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22. Solve for x and y: (6 marks)

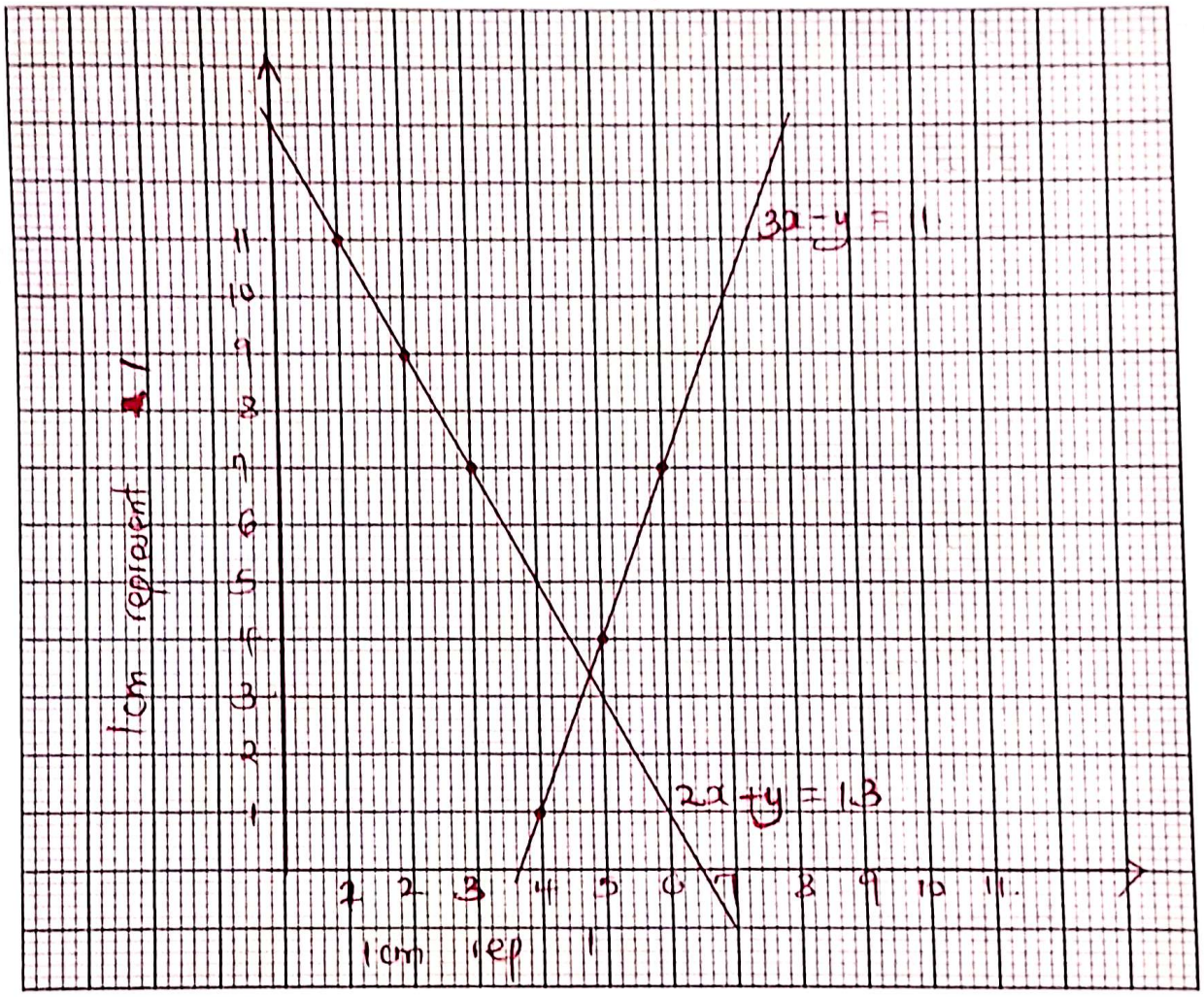
2x+y=13
3x− y = 11

$2x + y = 13$

x	1	2	3
y	11	9	7

$3x - y = 11$

x	1	2	3
y	-8	-5	-2



$3x - y = 11$

x	4	5	6
y	1	4	7

$x = 4.8$

and

$y = 3.4$

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23. A rectangular hall is 25 m long and 15 m wide. Tiles measuring 0.5 m by 0.25 m are used to cover the floor. (7 marks)

a) Find the area of the hall.

25m by 15m

$25 \times 15 = 375\ m^2$

b) Find the area of one tile.

0.5m by 0.25

$0.5 \times 0.25 = 0.125\ m^2$

c) Calculate the number of tiles required.

$\frac{375\ m^2}{0.125\ m^2} \times 1\ tile$

$= 3000\ tiles.$

24. A piece of land in the shape of a trapezium has parallel sides of 60 m and 40 m and height 30 m. (7 marks)

a) Find the area of the land.

$A = \frac{1}{2}(a+b)h$

$\frac{1}{2}(60+40)30$

$\frac{1}{2} \times 100 \times 30$

$= 1500\ m^2$

b) If 1 hectare of land costs Ksh 800,000, calculate the cost of this land.

$1ha = 10,000\ m^2 \times 1500\ m^2$

$\frac{1500}{10,000} = 0.15ha$

$0.15 \times 800,000$

$120,000$

$= Sh.\ 120,000.$

25. A tank is in the form of a cylinder of radius 3.5 m and height 4.2 m. (7 marks)

a) Find its volume in cubic metres.

$V = \pi r^2 h$

$\frac{22}{7} \times 3.5 \times 3.5 \times 4.2$

$= 161.7\ m^3.$

b) If 1 m^3 = 1,000 litres, how many litres can the tank hold?

$1m^3 = 1000l$

$161.7m^2 \times$

$161.7m^3 \times 1000l$

$= 161,700\ Litres.$

c) If water costs Ksh 50 per 1,000 litres, find the cost of filling the tank.

$1000l = Sh\ 50$

$161,700l \times$

$\frac{161,700l \times 50}{1000l}$

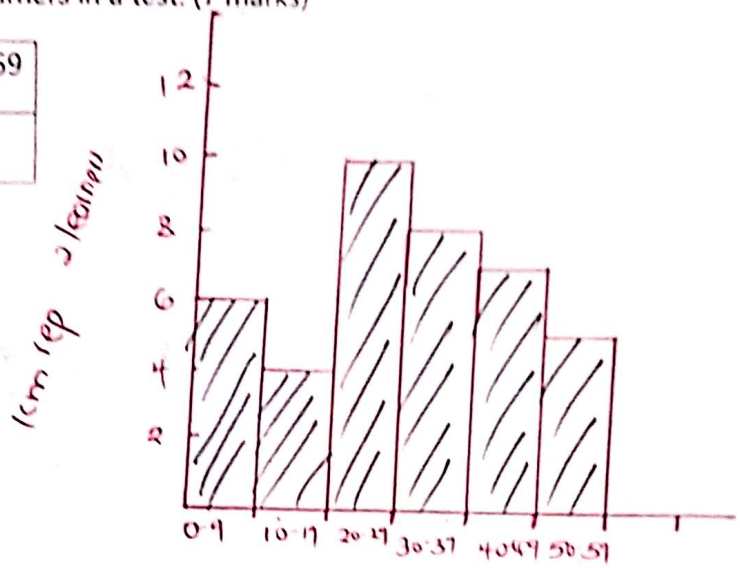
$= Sh.\ 8085$

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26. The table below shows the marks scored by 40 learners in a test. (7 marks)

Marks	0–9	10–19	20–29	30–39	40–49	50–59
Learners	4	6	10	8	7	5

a) Draw a histogram to represent the data.



b) Find the modal class.

27. A man borrowed Ksh 60,000 from a bank at 12% p.a. simple interest for 3 years. (7 marks)

a) Calculate the interest. $I = \frac{PRT}{100} \Rightarrow 60000 \times \frac{12}{100} \times 3$

$\begin{array}{r} 36 \\ 6 \overline{)216\,00} \end{array}$

$= Sh.\ 21,600.$

b) Find the total amount he paid at the end of the period.

$60,000 + 21600$

$= Sh.\ 81,600$

28. The interior angle of a regular polygon is 165°.(2 marks)

a) Find the number of sides of the polygon.

$180 - 165 = 15°$ $\quad \frac{360}{15} = 24$ sides.

Interior $\angle = \frac{n-2 \times 180}{n}$

$165 = \frac{(n-2) \times 180}{n}$

$165n = 180(n-2)$

$180n - 165n =$

$165n = 180n - 360$

$360n = 180n - 165$

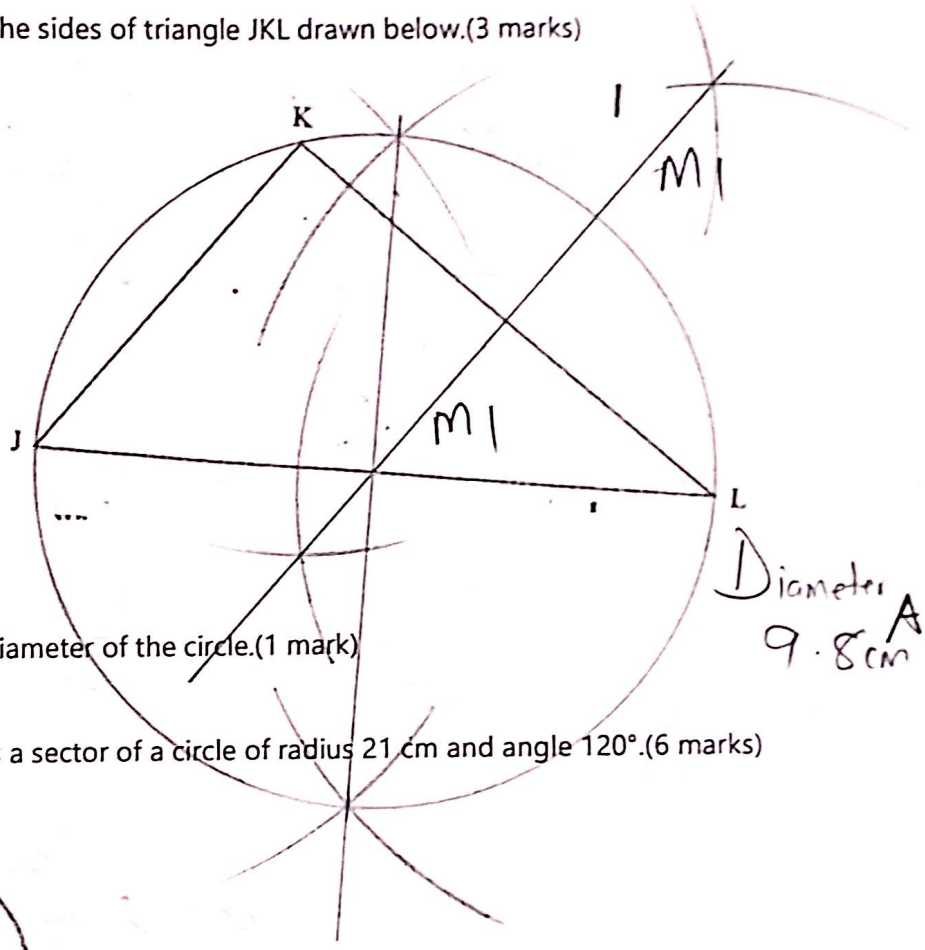
$\frac{360}{15} = \frac{15n}{15}$

$= 24$ sides

b) Name the polygon.

24-gon (icositetragon)

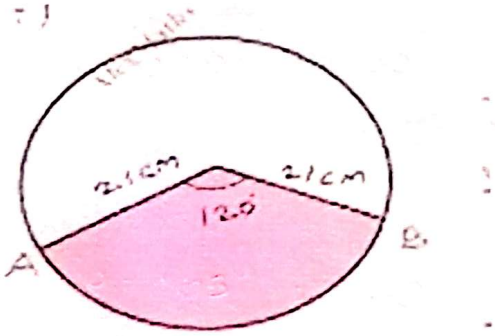
c)Construct a circle touching the sides of triangle JKL drawn below.(3 marks)



b) What is the length of the diameter of the circle.(1 mark)

Diameter
9.8cm A1

29. The diagram below shows a sector of a circle of radius 21 cm and angle 120°.(6 marks)



a) Find the length of the arc.

$= \frac{\theta}{360} \times 2\pi r$ M1

$= \frac{120}{360} \times 2 \times \frac{22}{7} \times 21$ M1 $= 44$ cm A1

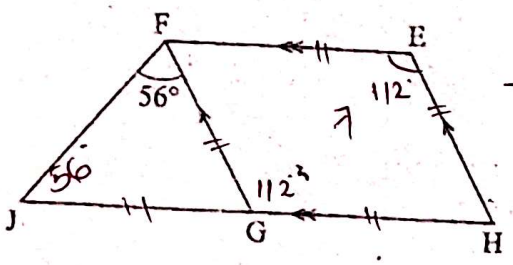
b) Find the area of the sector.

$\text{Area} = \frac{\theta}{360} \pi r^2$ M1

$= \frac{120}{360} \times \frac{22}{7} \times 21 \times 21$ M1

$= 462\text{cm}^2$ A1

c) In the figure be:ow EFGFI is a rhombus and FG..1 is a triangle. Angle GFJ = 56° and JGH is a straight line. Line JG = line GH.



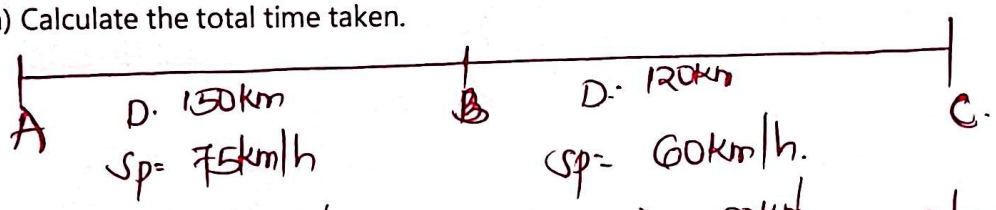
180 - 112°
112
68°

= 112°

What is the size of angle HEF?

30. A car travelled from town A to B, a distance of 150 km, at 75 km/h. It then travelled from B to C, a distanc of 120 km, at 60 km/h. (6 marks)

a) Calculate the total time taken.



D
S T

T.T = D/S = 150 km / 75 km/h = 2 hours

⇒ 120km / 60km/h = 2 hours

Total 4 hours.

b) Find the average speed for the whole journey.

Average Speed = Total distance / Total T.T. = 150 + 120 / 4 = 270 / 4 = 67.5 km

31. On the Cartesian plane provided: (8 marks)

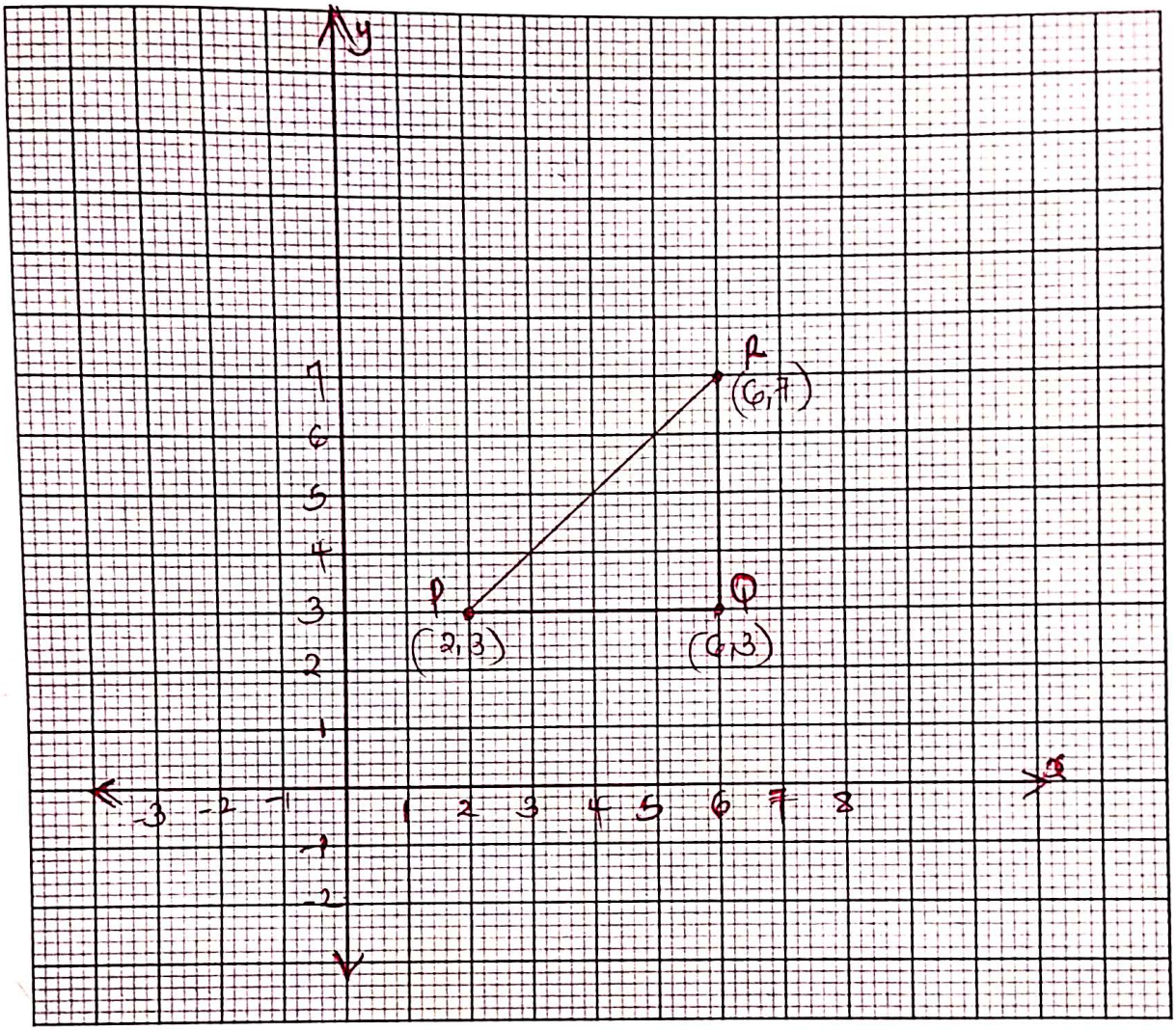
a) Plot points P(2, 3), Q(6, 3), and R(6, 7).

b) Join them to form triangle PQR.

c) Find the area of the triangle.

d) Find the equation of line PR.

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Area of the triangle. $= \frac{1}{2}bh$

$\frac{1}{2} \times 4 \times 4 = 8 cm^2$

Equation of line PR.

$m = \frac{y_1 - y_0}{x_1 - x_0} = \frac{7-3}{6-2} = \frac{4}{4} = 1$

$(x-2)\frac{7-3}{x-2} = 1(x-2)$

$7-3 = x-2$

$y = x-2+3$

$y = x+1.$

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