Kāsiga School

Sample Question Paper

English *Mathematics*

For admission to class 11 Cambridge

Time: 3 Hrs **Total: 100 marks**

ENGLISH

Section 1:

Directed Writing

Q1.You have read in a magazine article about a street child called Emmanuel who has achieved educational success.

You are Sister Jean. Write a letter to persuade local businesses to donate money to expand the work of the Archway Children's Centre.

In your letter you should:

• explain the work of the Centre and why it is necessary

• use Emmanuel's story to support your appeal

• give reasons why local businesses should support the Centre.

Base your letter on what you have read in the magazine article. Be careful to use your own words.

Begin your letter, 'Dear Local Business...'

Write between 1½ and 2 sides, allowing for the size of your handwriting.

Up to 10 marks are available for the content of your answer and up to 15 marks for the quality of your writing. **[25]**

Section 2:

Composition

Descriptive Writing

Q2 (a) Describe the scene and atmosphere when you visit a theme park, fairground or carnival.

OR

Q2 (b) Describe the last moments before you leave a place for ever.

Narrative Writing

Q3 (a) 'The figure in the long, black coat.' Use this as the title of a narrative.

OR

Q3 (b) Write a story that starts with the opening of a door to a room that you are not supposed to enter.

MATHEMATICS

Q1.

Solve the inequality.

$$3x - 1 \leqslant 11x + 2$$

Answer ..... [2]

Q2.

These are the first five terms of a sequence.

13 8 3 −2 −7

Find the nth term of this sequence.

Answer ..... [2]

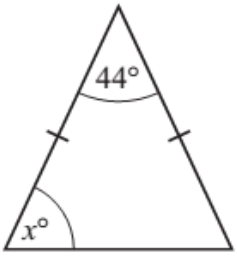
Q3.

Write $(27x^{12})^{\frac{1}{3}}$ in its simplest form.

Answer ..... [2]

Q4.

(a)



NOT TO SCALE

The diagram shows an isosceles triangle.

Find the value of x.

Answer(a) $x =$ ..... [1]

(b) The exterior angle of a regular polygon is 24°.

Find the number of sides of this regular polygon.

Answer(b) ..... [2]

Q5.

Find the equation of the line passing through the points (0, –1) and (3, 5).

Answer ..... [3]

Q6.

t varies inversely as the square root of u.
$t = 3$ when $u = 4$.

Find t when $u = 49$.

Answer $t =$ ..... [3]

Q7.

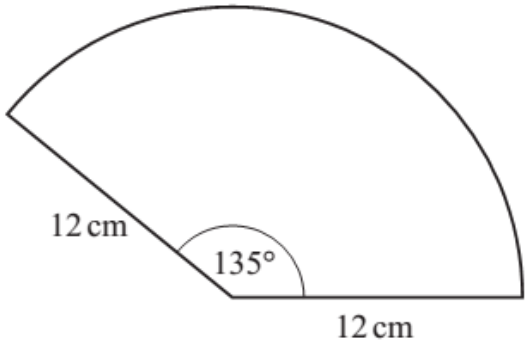
Solve the simultaneous equations.
You must show all your working.

$$\tfrac{1}{2}x - 8y = 1$$
$$x + 2y = 6\tfrac{1}{2}$$

Answer $x =$ .....

$y =$ ..... [3]

Q8.



NOT TO SCALE

The diagram shows a sector of a circle of radius 12 cm with an angle of 135°.

Calculate the perimeter of the sector.

Answer ..... cm [3]

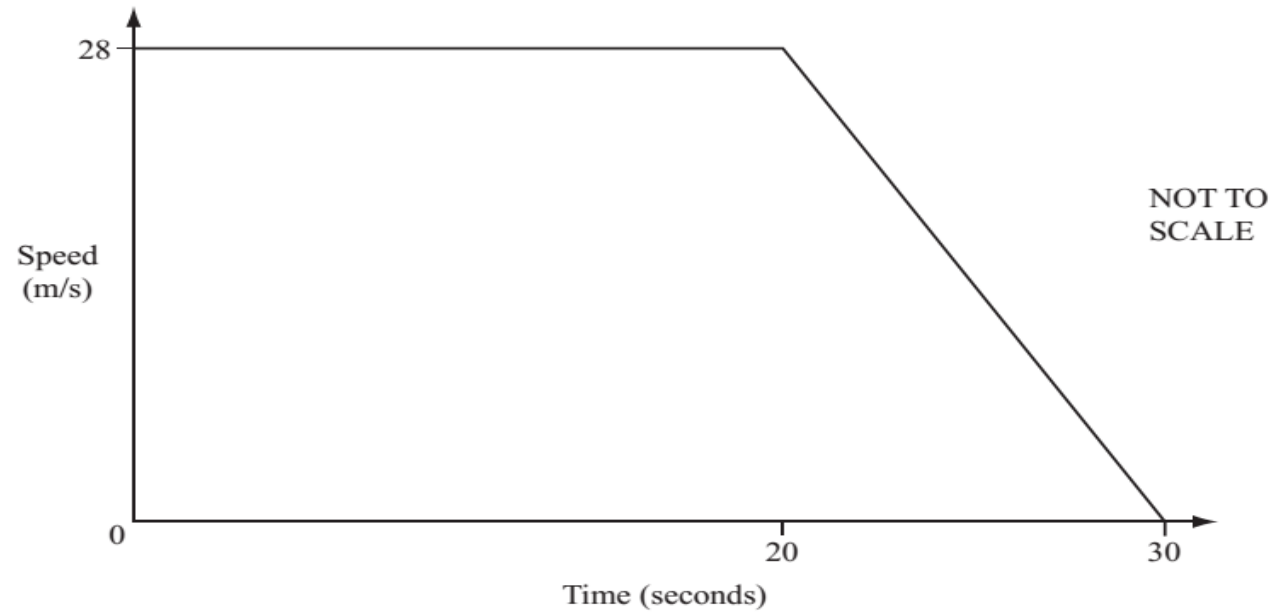
Q9.

A sphere has a volume of $80\,\text{cm}^3$.

Calculate the radius of the sphere.
[The volume, V, of a sphere with radius r is $V = \frac{4}{3}\pi r^3$.]

Answer ..... cm [3]

Q10.



The diagram shows the speed-time graph of a car.
It travels at 28 m/s for 20 seconds and then decelerates until it stops after a further 10 seconds.

(a) Calculate the deceleration of the car.

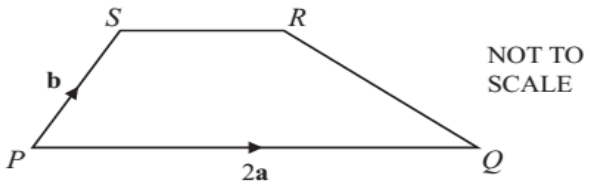
Answer(a) ..... m/s^2 [1]

(b) Calculate the distance travelled during the 30 seconds.

Answer(b) ..... m [3]

Q11.

(a)

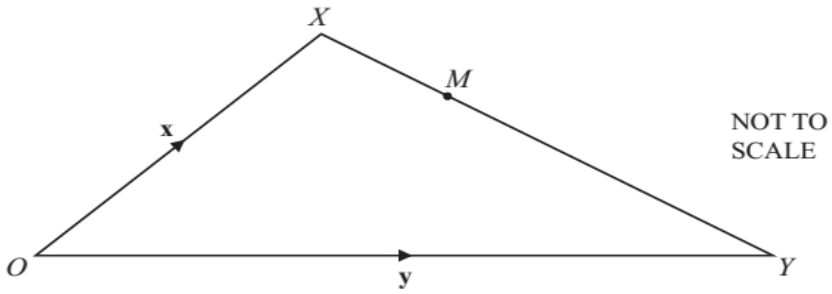


$PQRS$ is a trapezium with $PQ = 2SR$.
$\overrightarrow{PQ} = 2\mathbf{a}$ and $\overrightarrow{PS} = \mathbf{b}$.

Find $\overrightarrow{QR}$ in terms of **a** and **b** in its simplest form.

Answer(a) $\overrightarrow{QR}$ = ... [2]

(b)



$\overrightarrow{OX} = \mathbf{x}$ and $\overrightarrow{OY} = \mathbf{y}$.
M is a point on XY such that $XM : MY = 3 : 5$.

Find $\overrightarrow{OM}$ in terms of **x** and **y** in its simplest form.

Answer(b) $\overrightarrow{OM}$ = ... [2]

A tennis club has 560 members.

(a) The ratio men : women : children = 5 : 6 : 3.

(i) Show that the club has 240 women members.

Answer(a)(i)

[2]

(ii) How many members are children?

Answer(a)(ii) ..... [1]

(b) $\frac{5}{8}$ of the 240 women members play in a tournament.

How many women members do **not** play in the tournament?

Answer(b) ..... [2]

Q12.

A water pipe has a circular cross section of radius 0.75 cm.
Water flows through the pipe at a rate of 16 cm/s.

Calculate the time taken for 1 litre of water to flow through the pipe.

Answer ..... s [3]

.

Q13

(a) Simplify

(i) x^0,

Answer(a)(i) ..... [1]

(ii) $m^4 \times m^3$,

Answer(a)(ii) ..... [1]

(iii) $(8p^6)^{\frac{1}{3}}$.

Answer(a)(iii) ..... [2]

(b) $243^x = 3^2$

Find the value of x.

Answer(b) $x =$ ..... [2]

Q14.

$f(x) = 5x - 3$ $g(x) = x^2$

(a) Find $fg(-2)$.

Answer(a) ..... [2]

(b) Find $gf(x)$, in terms of x, in its simplest form.

Answer(b) ..... [2]