Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/32**

Paper 3 (Core) **May/June 2014**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Geometrical Instruments
Graphics Calculator

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
Do not use staples, paper clips, glue or correction fluid.
You may use an HB pencil for any diagrams or graphs.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** the questions.
Unless instructed otherwise, give your answers exactly or correct to three significant figures as appropriate.
Answers in degrees should be given to one decimal place.
For π, use your calculator value.
You must show all the relevant working to gain full marks and you will be given marks for correct methods, including sketches, even if your answer is incorrect.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total number of marks for this paper is 96.

This document consists of **16** printed pages.

CAMBRIDGE International Examinations

Formula List

Area, A, of triangle, base b, height h.	$A = \frac{1}{2}bh$
Area, A, of circle, radius r.	$A = \pi r^2$
Circumference, C, of circle, radius r.	$C = 2\pi r$
Curved surface area, A, of cylinder of radius r, height h.	$A = 2\pi rh$
Curved surface area, A, of cone of radius r, sloping edge l.	$A = \pi rl$
Curved surface area, A, of sphere of radius r.	$A = 4\pi r^2$
Volume, V, of prism, cross-sectional area A, length l.	$V = Al$
Volume, V, of pyramid, base area A, height h.	$V = \frac{1}{3}Ah$
Volume, V, of cylinder of radius r, height h.	$V = \pi r^2 h$
Volume, V, of cone of radius r, height h.	$V = \frac{1}{3}\pi r^2 h$
Volume, V, of sphere of radius r.	$V = \frac{4}{3}\pi r^3$

Answer **all** the questions.

1 **(a)** Round 245 to the nearest hundred.

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

(b) Write down a square number between 40 and 60.

Answer(b) ..... [1]

(c) Write 0.01 as a percentage.

Answer(c) ..... [1]

(d) Write down all the factors of 18.

Answer(d) ..... [2]

(e) Write down the lowest common multiple of 8 and 12.

Answer(e) ..... [1]

(f) Write $\frac{14}{21}$ as a fraction in its lowest terms.

Answer(f) ..... [1]

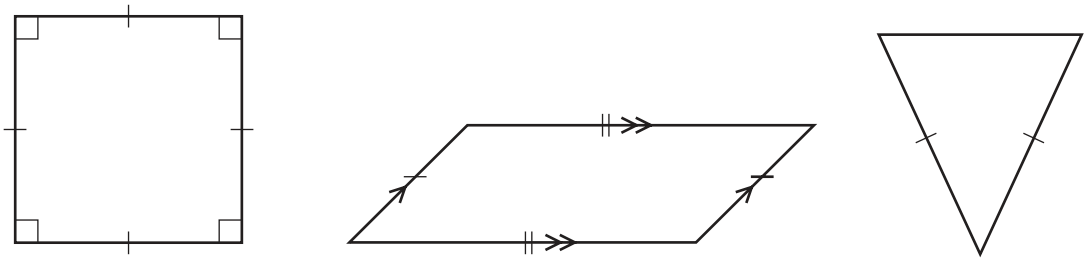
(g) Work out 35% of 48.

Answer(g) ..... [2]

(h) Write down a prime number between 10 and 20.

Answer(h) ..... [1]

2



A *B* *C*

(a) Write down the mathematical name of shape *A*, shape *B* and shape *C*.

Answer(a) *A* .....

B .....

C ..... [3]

(b) On each shape, draw any lines of symmetry. [3]

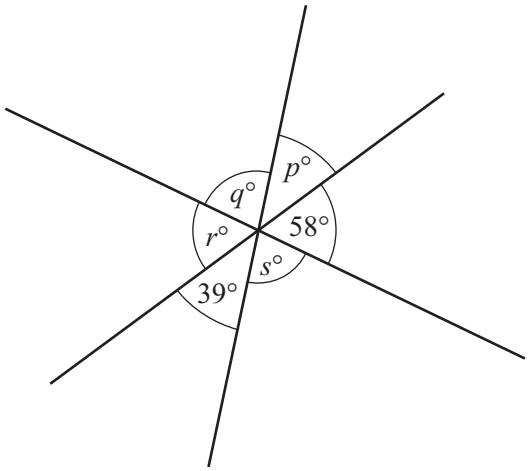
(c) For each shape, write down the order of rotational symmetry.

Answer(c) *A* .....

B .....

C ..... [3]

3 (a)



NOT TO SCALE

Three straight lines cross at a point.
Find the values of p, q, r and s.

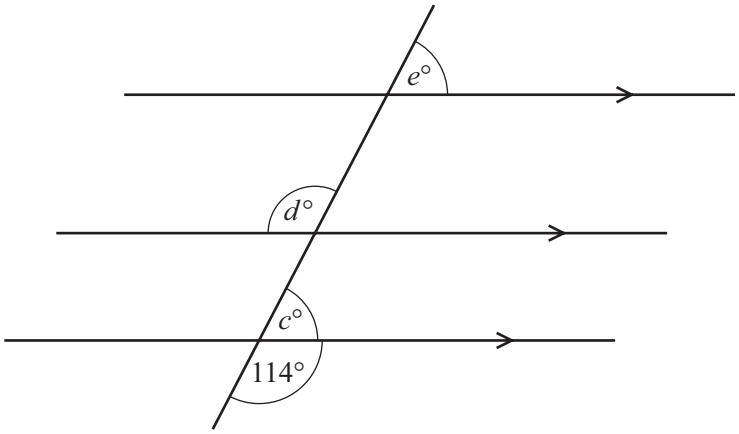
Answer(a) $p =$ .....

$q =$ .....

$r =$ .....

$s =$ ..... [4]

(b)



NOT TO SCALE

A straight line intersects three parallel lines.

Find the values of c, d and e.

Answer(b) $c =$ .....

$d =$ .....

$e =$ ..... [3]

4 **(a)** Find the value of $3p - 2q$ when $p = 1.5$ and $q = -1.2$.

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

(b) Solve the equation.

$$\frac{x}{3} = 6$$

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

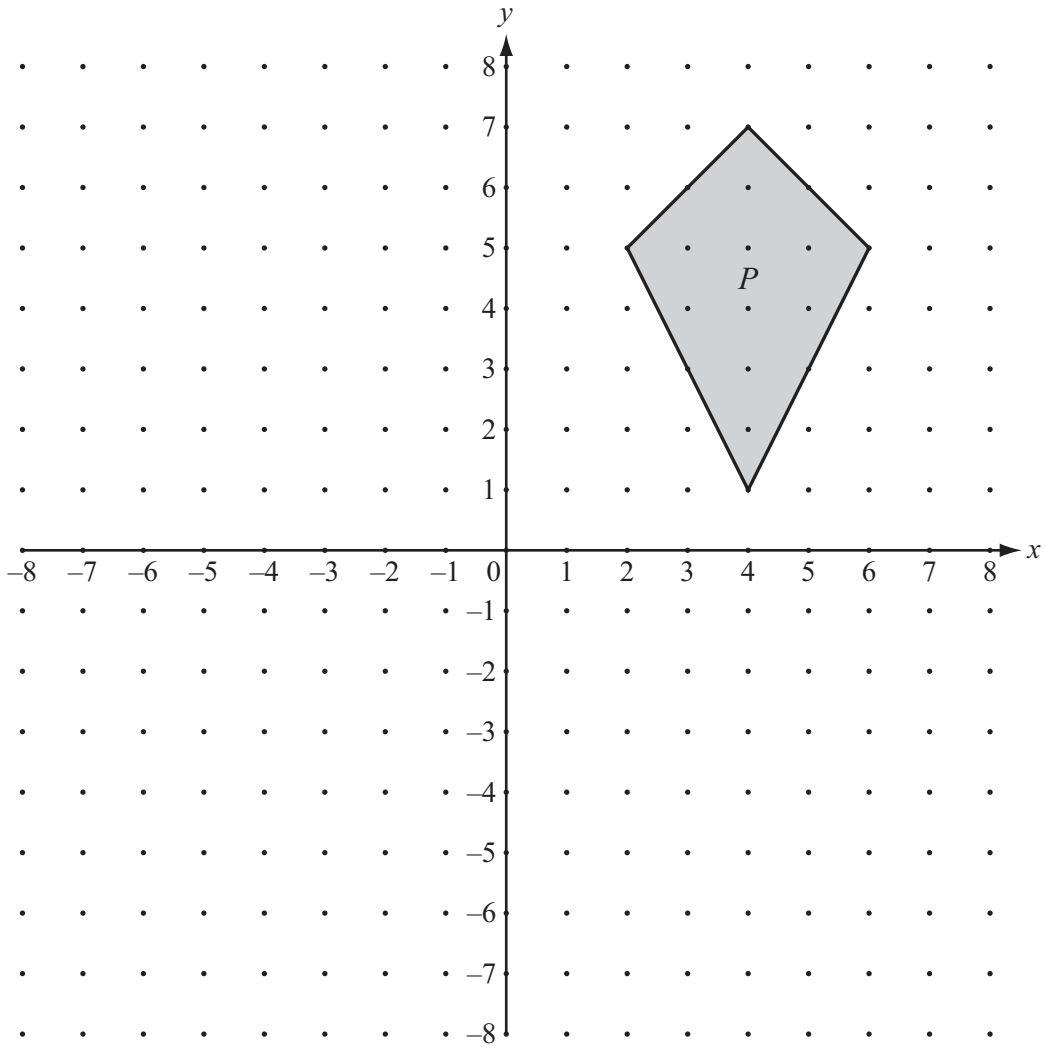
(c) Solve the simultaneous equations.

$$x - y = 10$$
$$2x + y = 2$$

Answer(c) $x =$ .....

$y =$ ..... [2]

5



The diagram shows a kite, P.

(a) Reflect P in the x-axis. Label the image A. [1]

(b) Rotate P through 90° anticlockwise about the origin. Label the image B. [2]

(c) Translate P by the vector $\begin{pmatrix} -6 \\ -7 \end{pmatrix}$. Label the image C. [2]

6 Jin owns a Chinese restaurant.
The table shows the number of orders in one day for rice and noodles.

	Cost ($)	Number of orders
Plain rice	1.60	20
Fried rice	1.75	35
Noodles	1.60	25
Chinese noodles	1.85	15

(a) Write down the ratio 20 : 35 : 25 : 15 in its simplest form.

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

(b) The table shows the cost of rice and noodles.

Calculate the total income from the orders of rice and noodles.

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

(c) The total income for that day was $1500.

Work out the income from the rice and noodles as a percentage of the total income.

Answer(c) ..... % [1]

7 Ibrahim ran 12 km for charity.
For each kilometre he received $8.25 .

(a) Find how much money Ibrahim raised for charity.

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

(b) Ibrahim took 90 minutes to run the 12 km.
Find his speed in kilometres per hour.

Answer(b) ..... km/h [2]

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8 These are the first four numbers in a sequence.

12 19 26 33

(a) Write down the next two numbers in this sequence.

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

(b) Find the nth term of this sequence.

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

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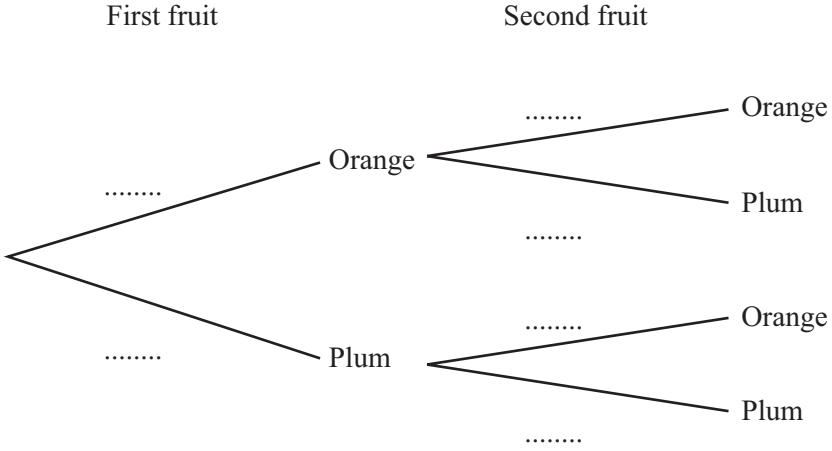
9 René has 6 oranges and 5 plums in a bag.
He picks out a fruit at random and eats it.

(a) Find the probability that the fruit is an orange.

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

(b) René picks out a second fruit at random and eats it.

Complete the tree diagram.

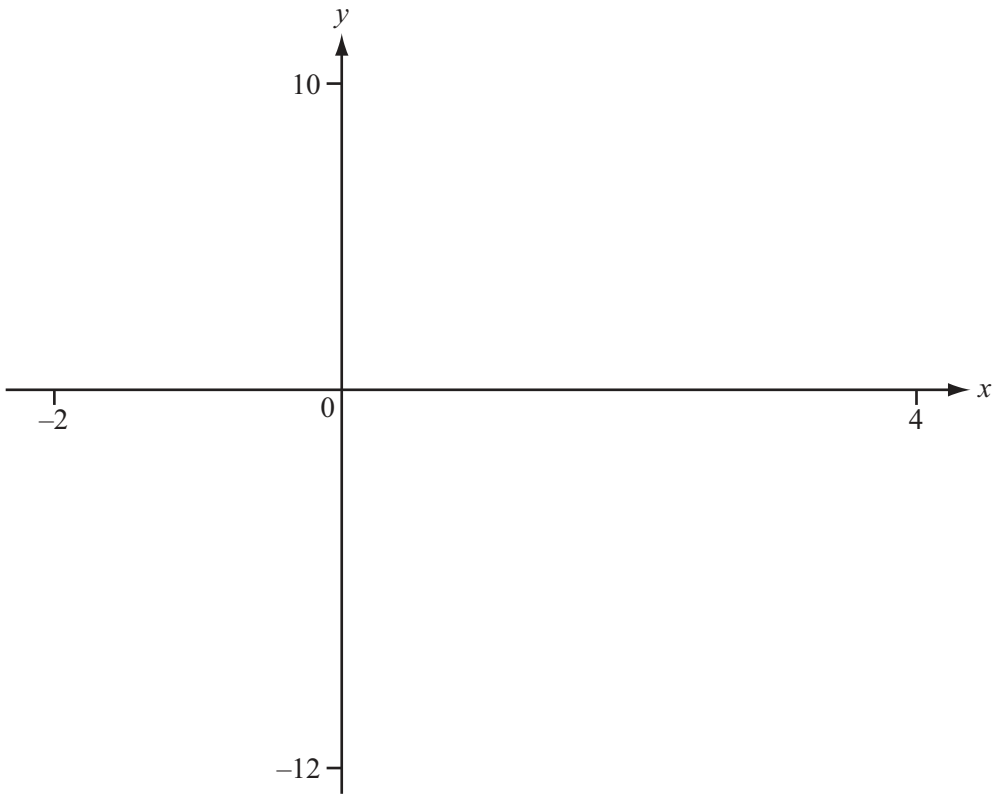


[3]

(c) Find the probability that René eats two oranges.

Answer(c) ..... [2]

10



$f(x) = 2x^2 - 5x - 8$

(a) On the diagram, sketch the graph of $y = f(x)$ between $x = -2$ and $x = 4$. [2]

(b) Find the zeros of $f(x)$.

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

(c) Find the co-ordinates of the local minimum point.

Answer(c) (..... , ...) [2]

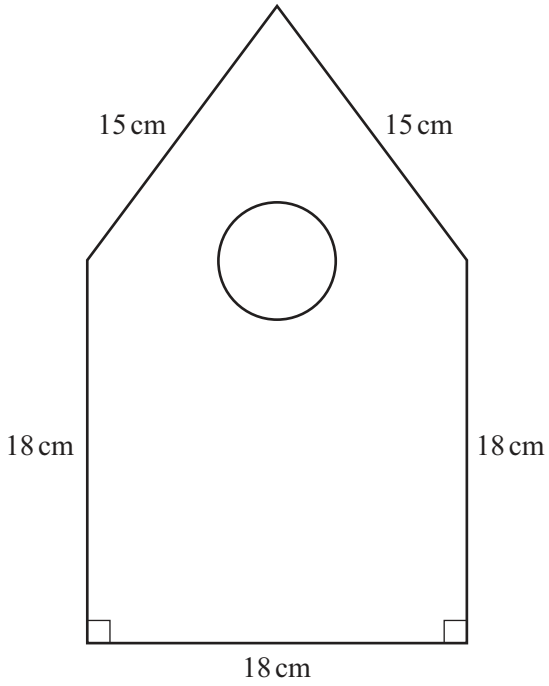
(d) $g(x) = -2x - 3$

On the diagram, sketch the graph of $y = g(x)$. [2]

(e) Solve $f(x) = g(x)$.

Answer(e) $x =$ ..... or $x =$ ..... [2]

11



NOT TO SCALE

The diagram shows the front of a bird box.
A circular hole of radius 2.1 cm is cut out from the front.

Show that the area of the front is 418 cm^2, correct to 3 significant figures.

[6]

12 **(a)** Ayako invests \$50 000 at a rate of 3.4% per year simple interest.

Calculate the total amount that Ayako has at the end of 6 years.

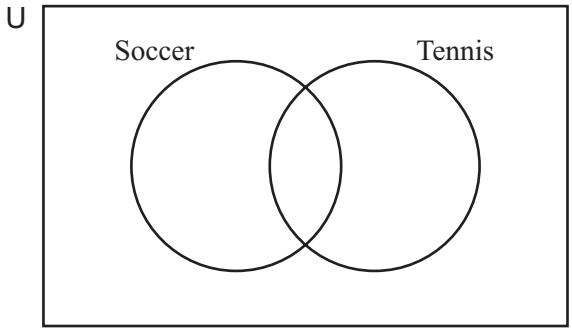
Answer(a) \$ ..... [3]

(b) Mayumi invests \$48 000 at a rate of 3.25% per year compound interest.

Calculate the total amount that Mayumi has at the end of 6 years.
Give your answer correct to the nearest dollar.

Answer(b) \$ ..... [3]

13



Seven children, *A*, *B*, *C*, *D*, *E*, *F* and *G*, are asked whether they play soccer or tennis.
A, *E* and *G* play soccer.
A, *B* and *C* play tennis.
D and *F* do not play soccer or tennis.

(a) Complete the Venn diagram. [2]

(b) One of the children is chosen at random.
Find the probability that

(i) the child plays both soccer and tennis,

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

(ii) the child does not play soccer or tennis.

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

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14 The frequency table shows the masses, in kilograms, of 30 dogs.

Mass (x kg)	Frequency
$0 < x \leqslant 10$	6
$10 < x \leqslant 20$	8
$20 < x \leqslant 30$	7
$30 < x \leqslant 40$	6
$40 < x \leqslant 50$	3

(a) Write down the mid-value of the interval $0 < x \leqslant 10$.

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

(b) Calculate an estimate of the mean mass of the 30 dogs.

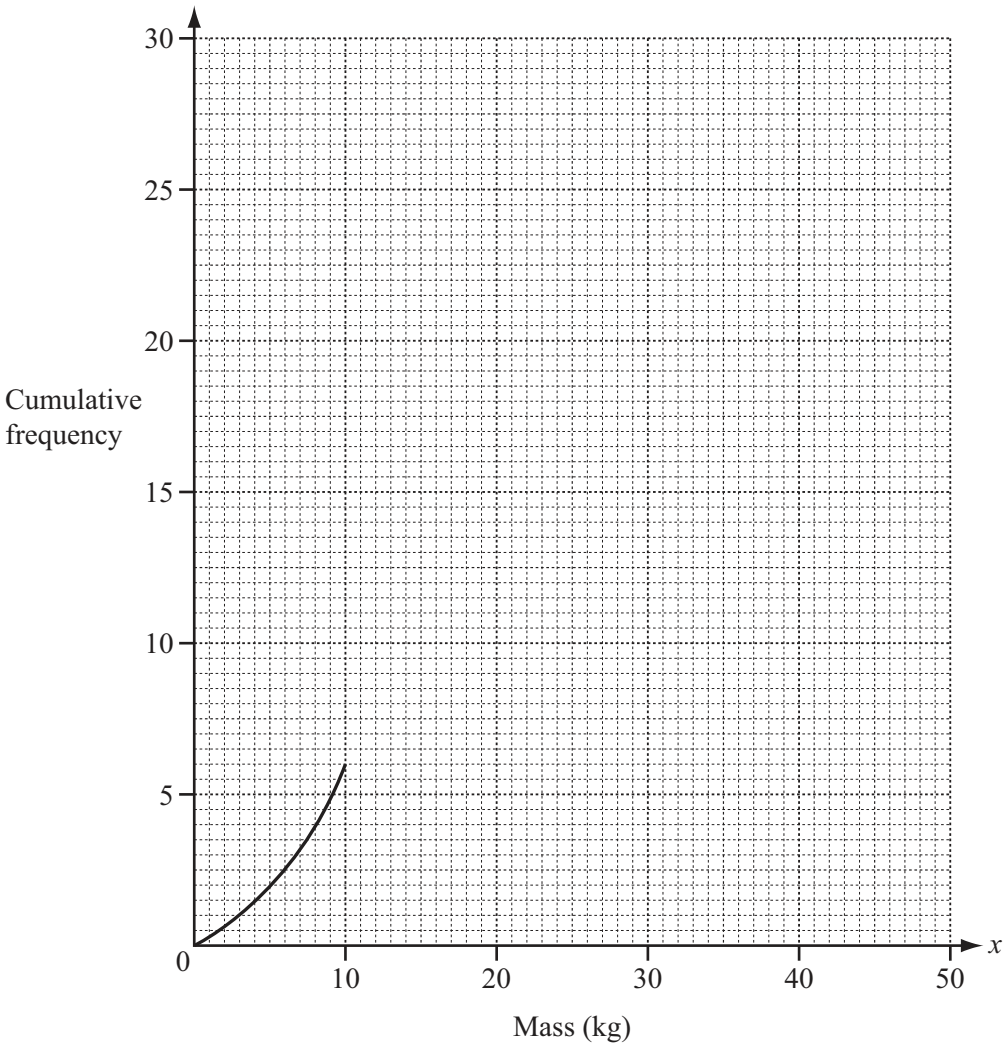
Answer(b) ..... kg [2]

(c) Complete the cumulative frequency table.

Mass (x kg)	Cumulative frequency
$x \leqslant 10$	6
$x \leqslant 20$	
$x \leqslant 30$	
$x \leqslant 40$	
$x \leqslant 50$	30

[1]

(d) Use your answer to **part (c)** to complete the cumulative frequency curve.



[3]

(e) Use your graph to find

(i) the median,

Answer(e)(i) ..... kg [1]

(ii) the lower quartile,

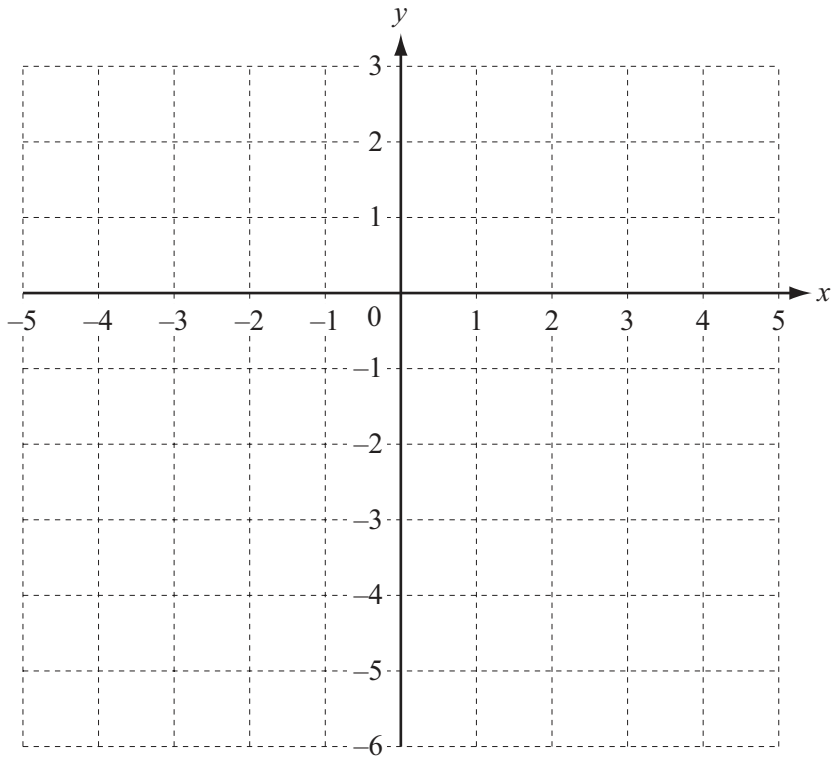
Answer(e)(ii) ..... kg [1]

(iii) the upper quartile.

Answer(e)(iii) ..... kg [1]

Question 15 is printed on the next page.

15



(a) Plot and label the points $A(-1, -5)$ and $B(3, 1)$. [2]

(b) Find the gradient of AB.

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

(c) Find the equation of the line parallel to AB passing through the point $(0, 0)$.

Answer(c) ..... [1]