

Please check the examination details below before entering your candidate information

Candidate surname

Other names

**Pearson Edexcel
International GCSE**

Centre Number

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Candidate Number

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Thursday 6 June 2019 PREDICTION PAPER 2H

Morning (Time: 2 hours)

Paper Reference **4MA1/2H**

Mathematics A

Level 1/2

Unit 2H



You must have:

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

--

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- **Calculators may be used.**
- You must **NOT** write anything on the formulae page.
Anything you write on the formulae page will gain NO credit.

Information

- The total mark for this paper is 100.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ►

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Pearson

IGCSE Maths 2019 PAPER 2H

Algebra – brackets, solving, factorising	Nth term
Algebra - show that and solve	Parallel and perpendicular lines
Algebraic fractions - Adding & subtracting	Percentage change
Algebraic fractions - simplifying	Percentages (Quantity of)
Algebraic fractions - simplifying GRADE 9	Percentages (Reverse)
Angles - Basic facts Reasoning	Pressure
Angles - Parallel lines ZFC	Probability tables and Estimating
Arithmetic sequences	Probability with algebra
Bearings	Products of primes
Bearings with sine cosine rule	Proof
Bearings with trig	Proportion and graphs
Bisectors	Pythagoras
Bounds	Quadratic Inequalities
Circle problems Area and Circumference	Quadratic formula
Circle problems Semi circles	Ratio
Column vector	Ratio a b c d
Completing the Square	Ratio and proportion
Compound interest	Rationalising
Constructing formulae	Recurring decimals
Cumulative frequency 1 Basic	Regions
Cumulative frequency 2 Median and IQR	Scale drawings
Density	Sector
Density Combining	Set theory
Depreciation	Similar shapes - Length
Direct proportion	Similar shapes - Length area and volume
Distance time graphs	Similar shapes - Mixed length and area
dydx calculus - Grade 9 ONLY	Simultaneous Equations Hidden
dydx calculus - Stationary points	Simultaneous Non linear
dydx calculus	Simultaneous equations - graphical
dydx calculus applied	Simultaneous equations
Estimating gradients IGCSE	Sine Cosine rule & area of a triangle
Exchange rates	Solving Equations
Expanding three brackets	Speed
Experimental probability	Standard form
Exponential	Subject of the formula
Exterior and Interior angles	Surds
Fractions	Surds Grade 9
Functions – Graphical & estimating gradients	Surface area
Functions	Theorem - Alternate Segment
Graphical solutions	Theorem - Tangents
Graphs of linear functions	Theorem - Proof
Graphs non linear	Theorems - non tangent
Graphs-recognise	Transformations- Enlargement
Hcf lcm	Transformations- Mixed
Histograms	Transformations- Reflection
Indices (Harder)	Transformations- Rotation
indices F	Transformations- Translation
Inequalities number line 2018	Tree diagrams
Inequalities	Trigonometric graphs
Ingredients	Trigonometry 3D
Intersecting Chords Theorem	Trigonometry
Inverse proportion	Vector proof
IQR	Vectors
Kinematics IGCSE	Venn diagrams
litretocm ³	Volume and Surface area problems
Mean - Easy	Volume prism
Mean - Estimated	$y=mx+c$
Mean Reverse problems	$y = f(x)$
Modal Median class interval	

Grade 5

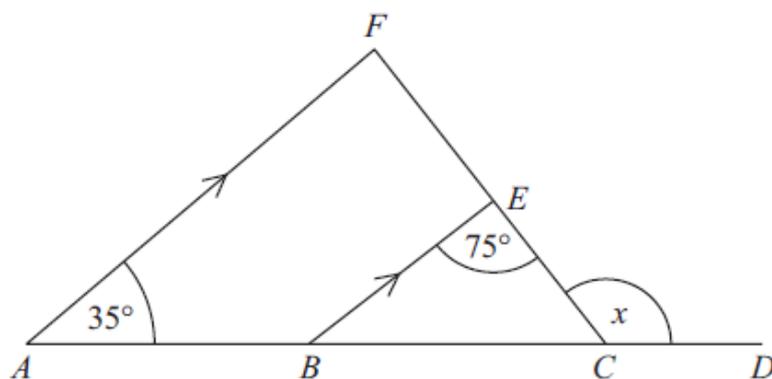


Diagram NOT
accurately drawn

$ABCD$ is a straight line.

AF is parallel to BE .

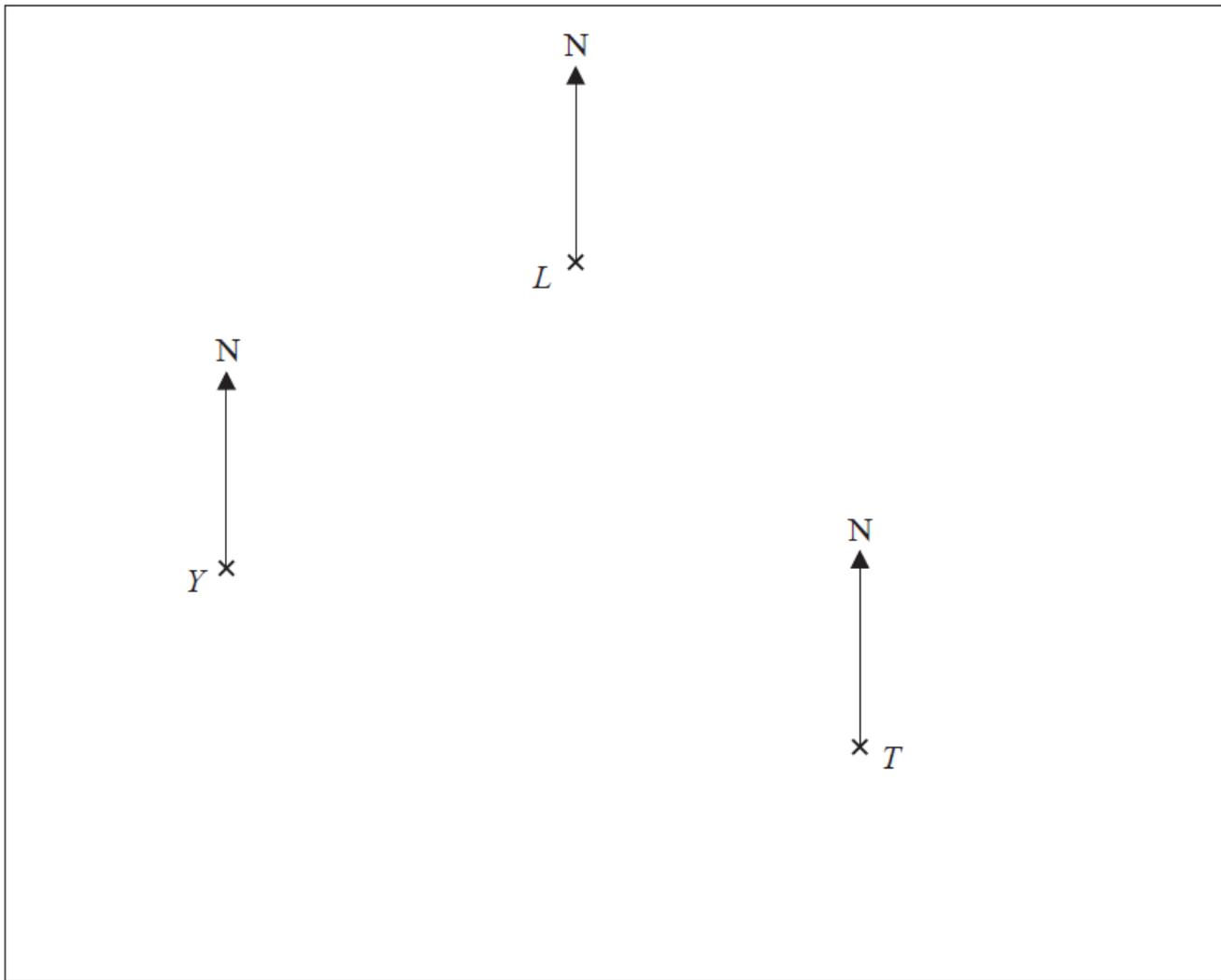
Angle $FAB = 35^\circ$

Angle $CEB = 75^\circ$

Work out the size of the angle marked x .

Give reasons for your answer.

The diagram shows the positions of a lighthouse L , a yacht Y and a tanker T on a map.



Scale 1 cm represents 10 km

(a) Measure the bearing of L from Y .

.....
 (1)

The tanker, T , sails 80 km on a bearing of 320° .

(b) Find the distance, in km, between the tanker and the lighthouse when the tanker is closest to the lighthouse.

..... km
 (2)

(Total for Question 12 is 3 marks)

The diagram shows the positions of three turbines A , B and C .

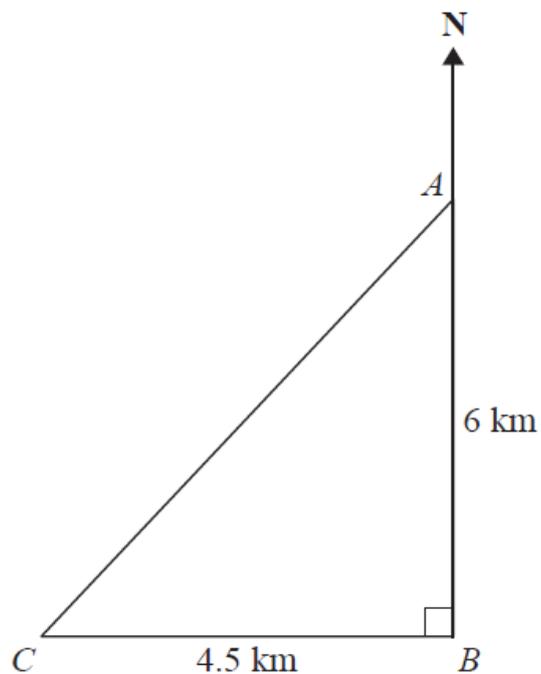


Diagram **NOT**
accurately drawn

A is 6 km due north of turbine B .
 C is 4.5 km due west of turbine B .

(a) Calculate the distance AC .

..... km
(3)

(b) Calculate the bearing of C from A .
Give your answer correct to the nearest degree.

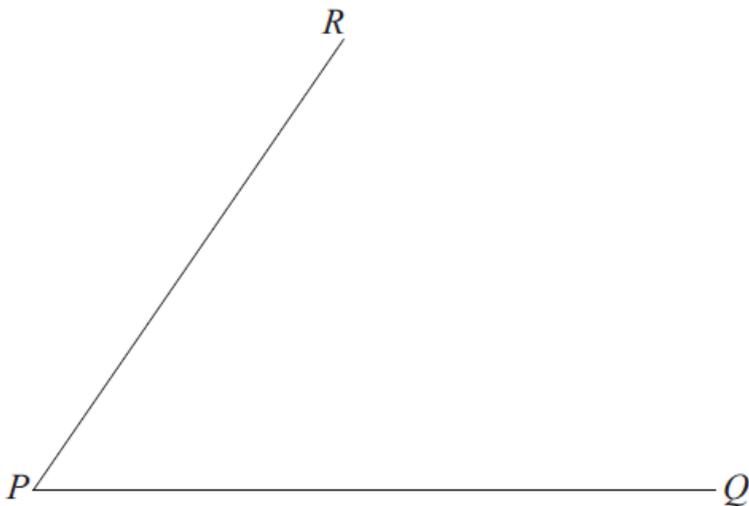
.....
(4)

- (a) Use ruler and compasses to construct the perpendicular bisector of the line AB .
You must show all your construction lines.



(2)

- (b) Use ruler and compasses to construct the bisector of angle RPQ .
You must show all your construction lines.



(2)

*14 Viv wants to invest £2000 for 2 years in the same bank.

The International Bank

Compound Interest

4% for the first year
1% for each extra year

The Friendly Bank

Compound Interest

5% for the first year
0.5% for each extra year

At the end of 2 years, Viv wants to have as much money as possible.

Which bank should she invest her £2000 in?

(Total for Question 14 is 4 marks)

1 Mike buys c pens and r rulers.

Each pen costs 24 cents.

Each ruler costs 37 cents.

Mike spends a total of T cents buying pens and rulers.

Write down a formula for T in terms of c and r .

.....
(Total for Question 1 is 3 marks)

6 Jalin lives in England.
He does a search on the internet and sees the same type of camera on sale in France and in America.

In France, the camera costs 126 euros.

In America, the camera costs \$165.24

Jalin finds out these exchange rates.

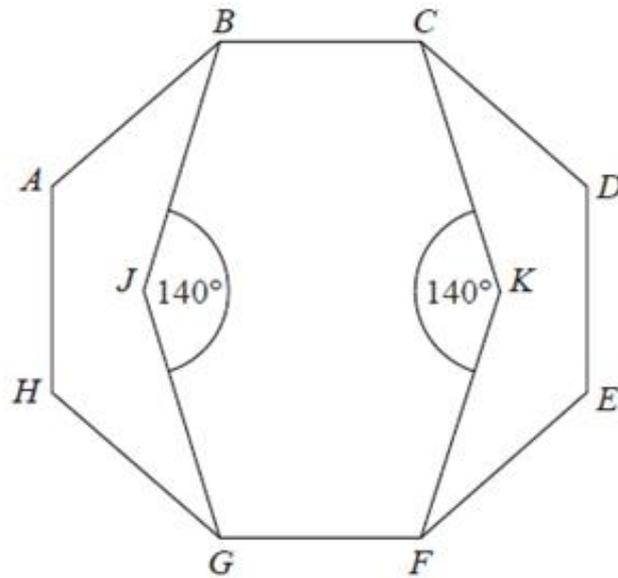
<p>Exchange rates 1 euro = £0.89 £1 = \$1.62</p>

How much cheaper is the camera in America than in France?
Give your answer in pounds (£).

£

(Total for Question 6 is 4 marks)

Diagram NOT
accurately drawn



ABCDEFGH is a regular octagon.

BCKFGJ is a hexagon.

JK is a line of symmetry of the hexagon.

Angle *BJG* = angle *CKF* = 140°

Work out the size of angle *KFE*.

You must show all your working.

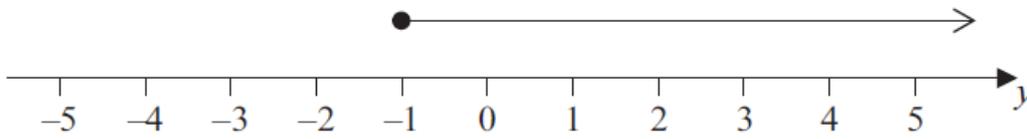
$$-2 \leq n < 2$$

n is an integer.

(a) Write down all the possible values of n .

.....
(2)

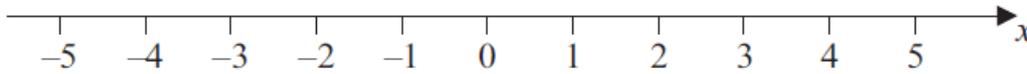
(b) Here is an inequality, in y , shown on a number line.



Write down the inequality.

.....
(2)

(c) On the number line below, show the inequality $-3 < x < 2$



(2)

(d) Solve $4x + 9 \geq 2x + 6$

.....
(3)

5 Here are the ingredients needed to make 8 shortbread biscuits.

Shortbread biscuits
makes 8 biscuits

120 g butter
60 g caster sugar
180 g flour

Tariq is going to make some shortbread biscuits.

He has the following ingredients

330 g butter

200 g caster sugar

450 g flour

Work out the greatest number of shortbread biscuits that Tariq can make with his ingredients.

You must show all your working.

..... biscuits

(Total for Question 5 is 3 marks)

The table gives information about the number of boxes of strawberries filled by each of 100 farm workers.

Number of boxes	Frequency
$160 < x \leq 180$	5
$180 < x \leq 200$	25
$200 < x \leq 220$	48
$220 < x \leq 240$	22

(a) Write down the modal class interval.

.....
(1)

(b) Work out an estimate for the mean.

.....
(4)

(Total for Question 3 is 5 marks)

- 10 The table gives information about the time it took each of 80 children to do a jigsaw puzzle.

	Number of children	Mean time (minutes)
Boys	32	32.4
Girls	48	28.4

Work out the mean time for all 80 children.

..... minutes

(Total for Question 10 is 3 marks)

a , b , c and d are 4 integers written in order of size, starting with the smallest integer.

The mean of a , b , c and d is 15

The sum of a , b and c is 39

(a) Find the value of d .

$$d = \dots\dots\dots$$

(2)

Given also that the range of a , b , c and d is 10

(b) work out the median of a , b , c and d .

$$\dots\dots\dots$$

(2)

(Total for Question 7 is 4 marks)

Ahmed, Behnaz and Carmen each have some money.

Ahmed has 20% more money than Behnaz.

Carmen has $\frac{7}{8}$ of the amount of money that Behnaz has.

Carmen has 31.50 euros.

Work out how much money Ahmed has.

..... euros

(Total for Question 8 is 3 marks)

In India,

62 million mobile phones were sold from 1st October 2014 to 31st December 2014

14.5% fewer mobile phones were sold from 1st January 2015 to 31st March 2015

- (a) Work out the number of mobile phones sold in India from 1st January 2015 to 31st March 2015

..... million
(3)

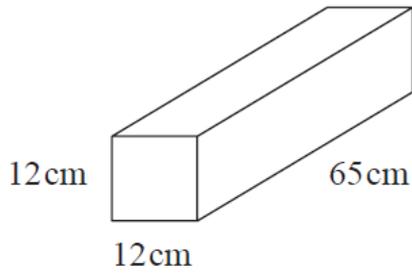
The table shows information about the mean number of text messages sent by each adult in the UK in 2013 and in 2014

	Mean number of text messages sent by each adult
2013	1656
2014	1404

- (b) Work out the percentage decrease in the mean number of text messages sent by each adult in the UK from 2013 to 2014
Give your answer correct to 1 decimal place.

..... %
(3)

The diagram shows a concrete block on horizontal ground.



$$p = \frac{F}{A}$$

p = pressure
 F = force
 A = area

The block is a cuboid, 12 cm by 12 cm by 65 cm.
The block exerts a force of 220 newtons on the ground.

Calculate the pressure that the block exerts on the ground.

Give your answer in newtons/cm²

.....newtons / cm²

(Total for Question 6 is 2 marks)

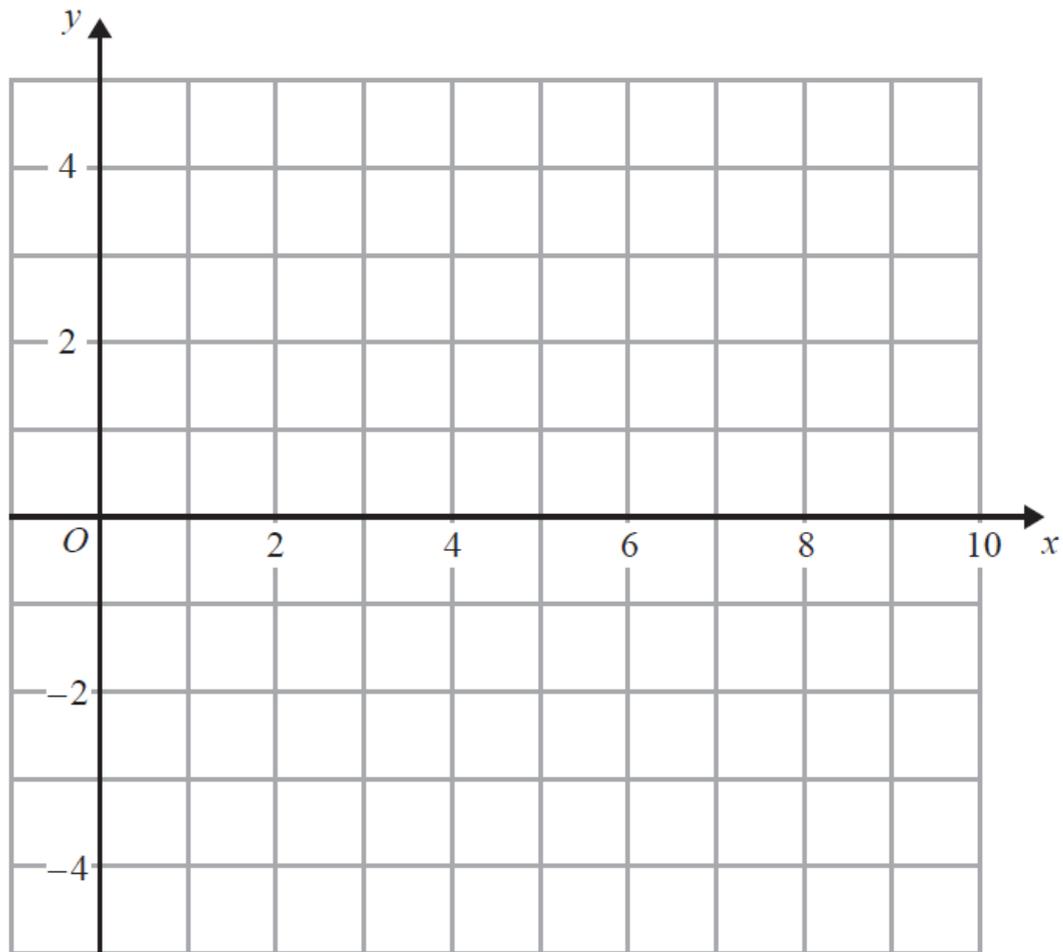
Penny, Amjit and James share some money in the ratios 3 : 6 : 4
Amjit gets \$28 more than James.

Work out the amount of money that Penny gets.

\$

(Total for Question 2 is 3 marks)

(a) On the grid, draw the line with equation $x + 2y = 8$ for values of x from 0 to 9



(2)

(b) Show, by shading on the grid, the region defined by all three inequalities

$$x + 2y \leq 8$$

$$x \geq 2$$

$$y \geq 1$$

Label your region **R**.

(3)

(Total for Question 8 is 5 marks)

A ship has a length of 345 metres.
A scale model is made of the ship.
The scale of the model is 1:200

Work out the length of the scale model of the ship.
Give your answer in centimetres.

.....cm

(Total for Question 13 is 3 marks)

Solve the simultaneous equations

$$3x + 2y = 8$$

$$2x + 5y = -2$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

(Total 4 marks)

7.

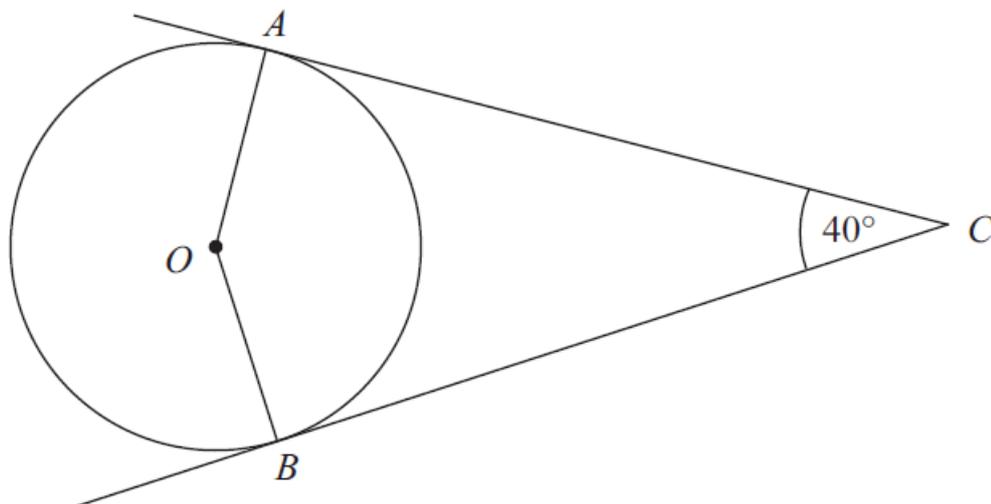


Diagram **NOT**
accurately drawn

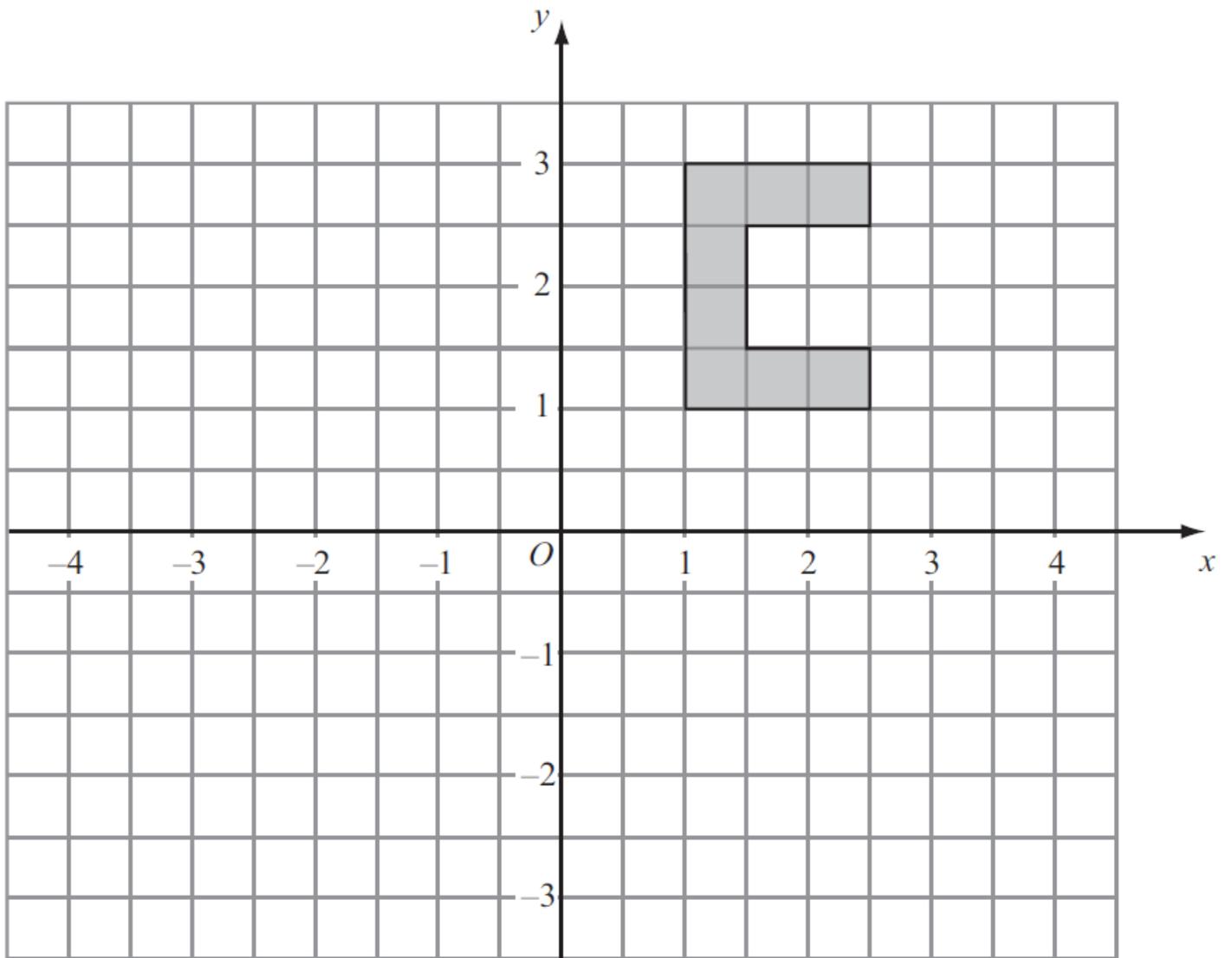
A and B are points on the circumference of a circle, centre O .
 AC and BC are tangents to the circle.

Angle $ACB = 40^\circ$.

Find the size of angle ABO .

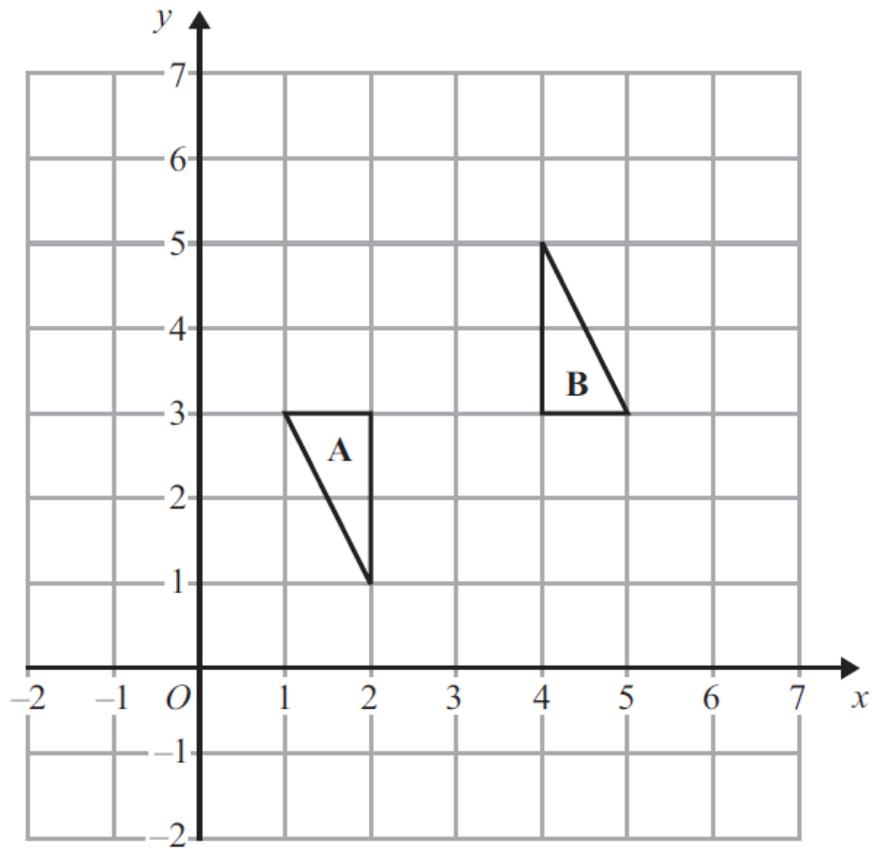
.....^o

(Total 3 marks)



Rotate the shape 90° clockwise, centre O .

(Total 2 marks)

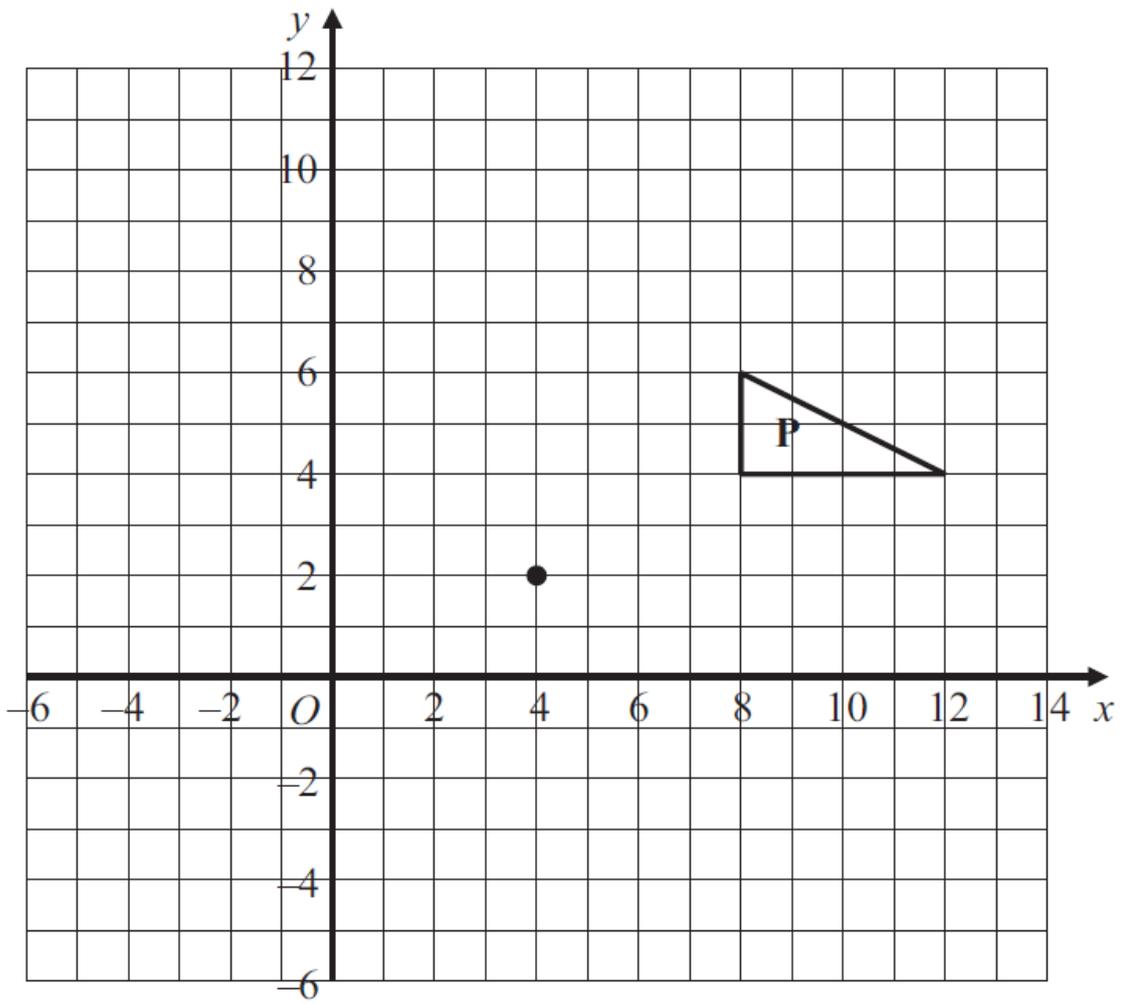


Describe fully the single transformation that maps triangle A onto triangle B.

.....

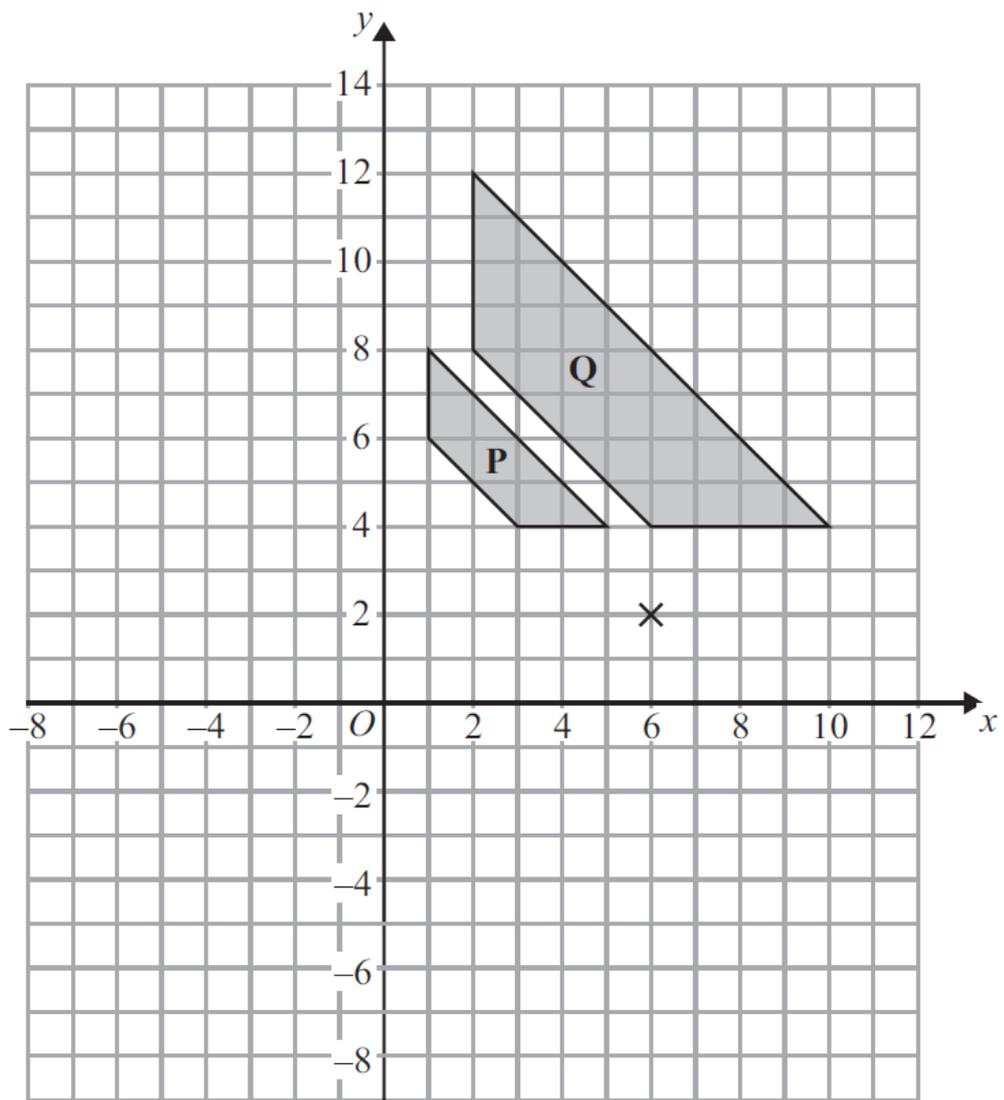
.....

(Total for Question 9 is 3 marks)



On the grid, enlarge triangle **P** with scale factor $\frac{1}{2}$ and centre $(4, 2)$.

(2)

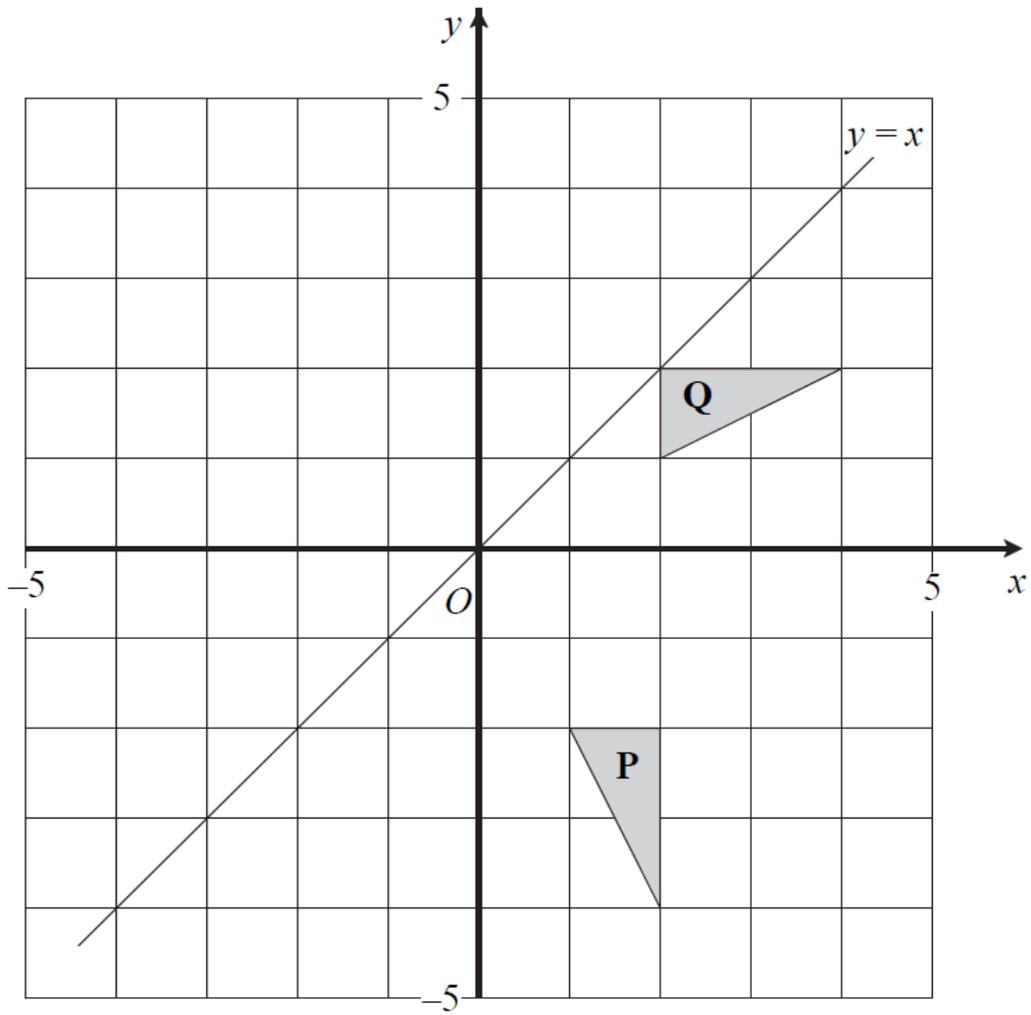


(a) Describe fully the single transformation that maps shape **P** onto shape **Q**.

.....

.....

(3)



(a) Describe fully the single transformation which maps triangle **P** onto triangle **Q**.

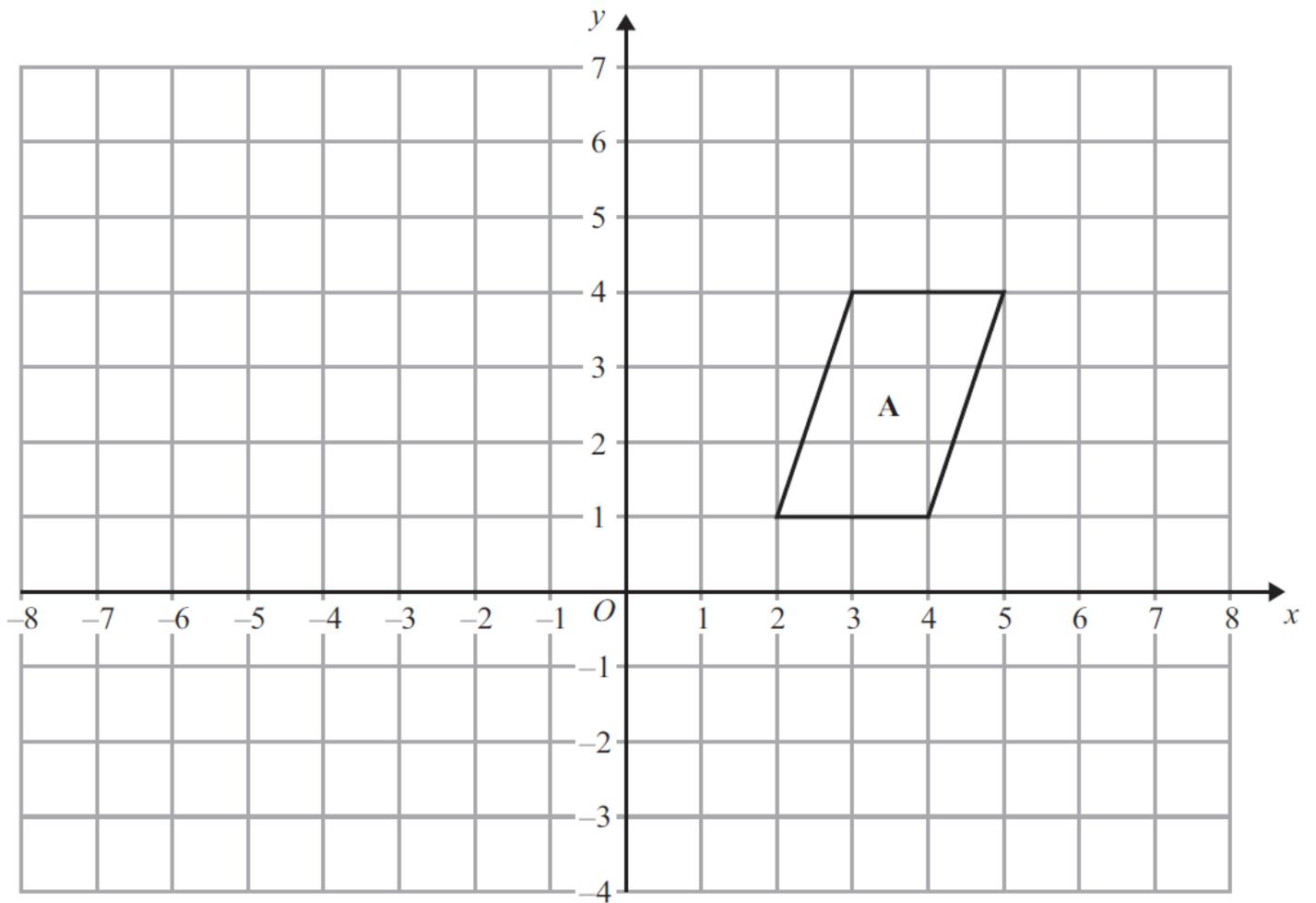
.....

.....

(3)

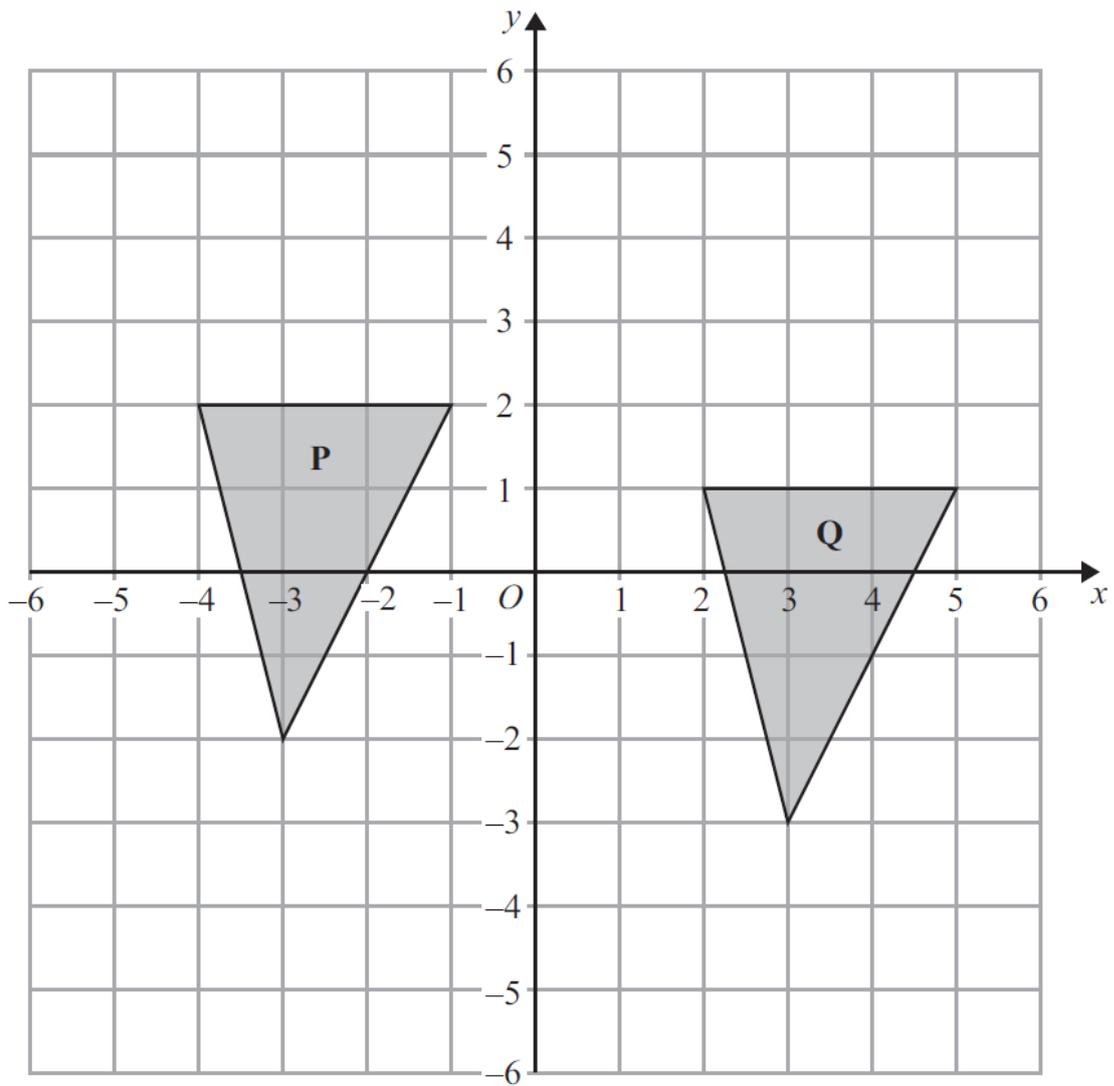
(b) Reflect triangle **Q** in the line with equation $y = x$.

(2)



(a) Translate shape A by the vector $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$.

(1)

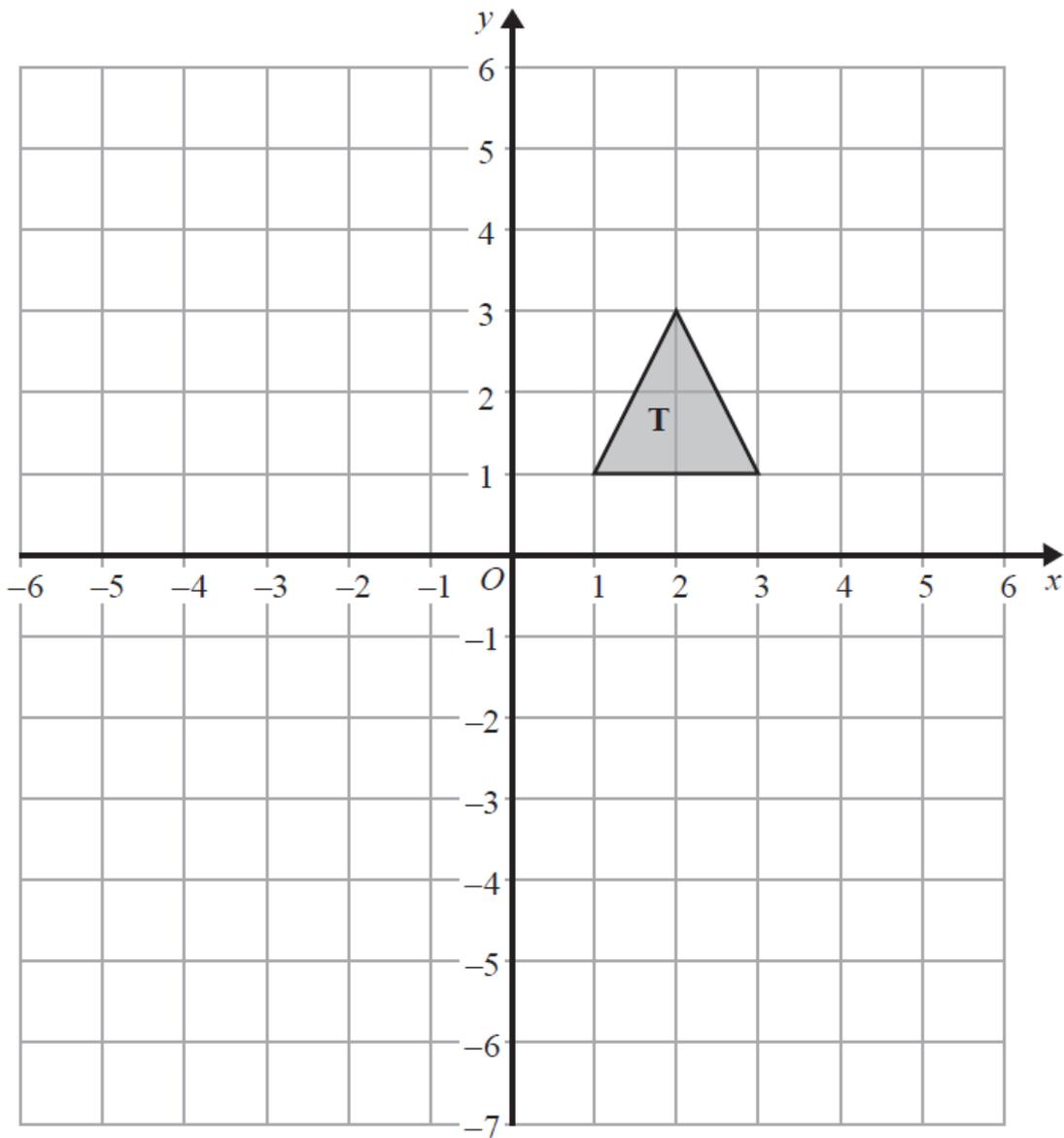


Describe fully the single transformation that maps triangle **P** onto triangle **Q**.

.....

.....

(Total for Question 10 is 2 marks)



Shape **T** is reflected in the line $x = -1$ to give shape **R**.
Shape **R** is reflected in the line $y = -2$ to give shape **S**.

Describe the **single** transformation that will map shape **T** to shape **S**.

.....

.....

.....

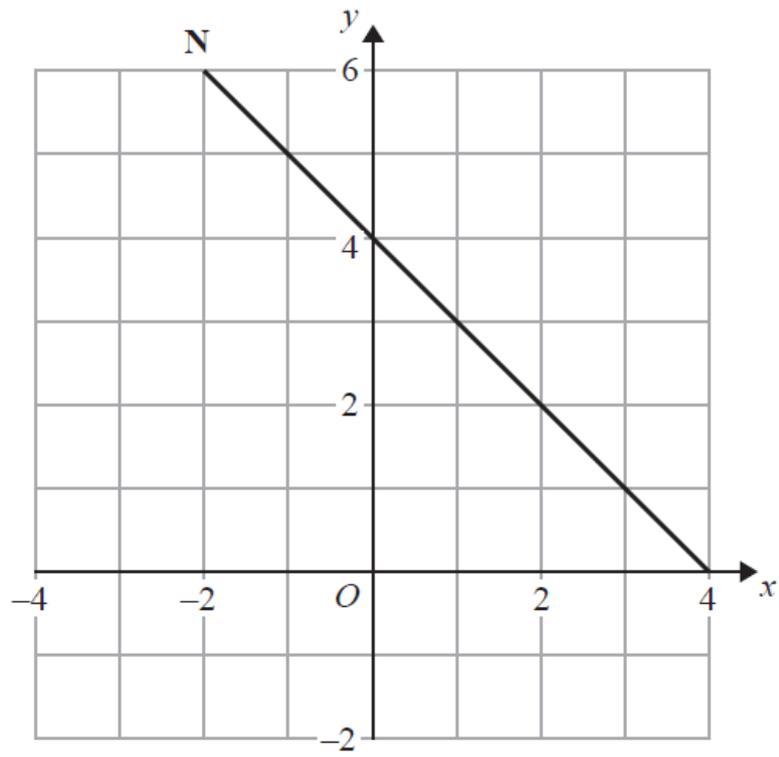
(Total for Question 7 is 2 marks)

Make v the subject of the formula $t = \frac{v}{5} + 2$

$$v = \dots\dots\dots$$

(Total 2 marks)

The line **N** is drawn on the grid below.



(b) Find an equation of the line **N**.

.....
(3)

(a) ABC is a right-angled triangle.

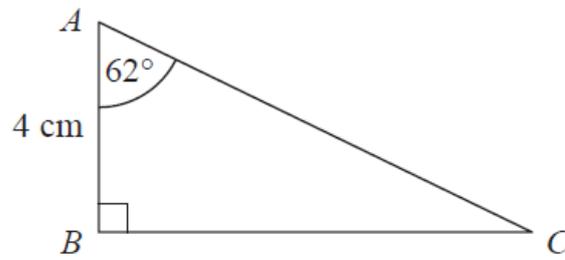


Diagram **NOT** accurately drawn

$$AB = 4\text{ cm}$$

$$\text{Angle } CAB = 62^\circ$$

Work out the length of BC .

Give your answer correct to 3 significant figures.

..... cm

(3)

(b) PQR is a right-angled triangle.

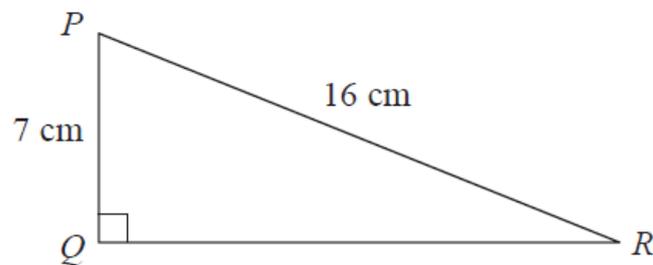


Diagram **NOT** accurately drawn

$$PQ = 7\text{ cm}$$

$$PR = 16\text{ cm}$$

Work out the size of the angle PRQ .

Give your answer correct to 3 significant figures.

.....^o

(3)

Grade 6 - 7

4. The speeds of 100 cars on a motorway were recorded.
The grouped frequency table shows some information about the speeds of these cars.

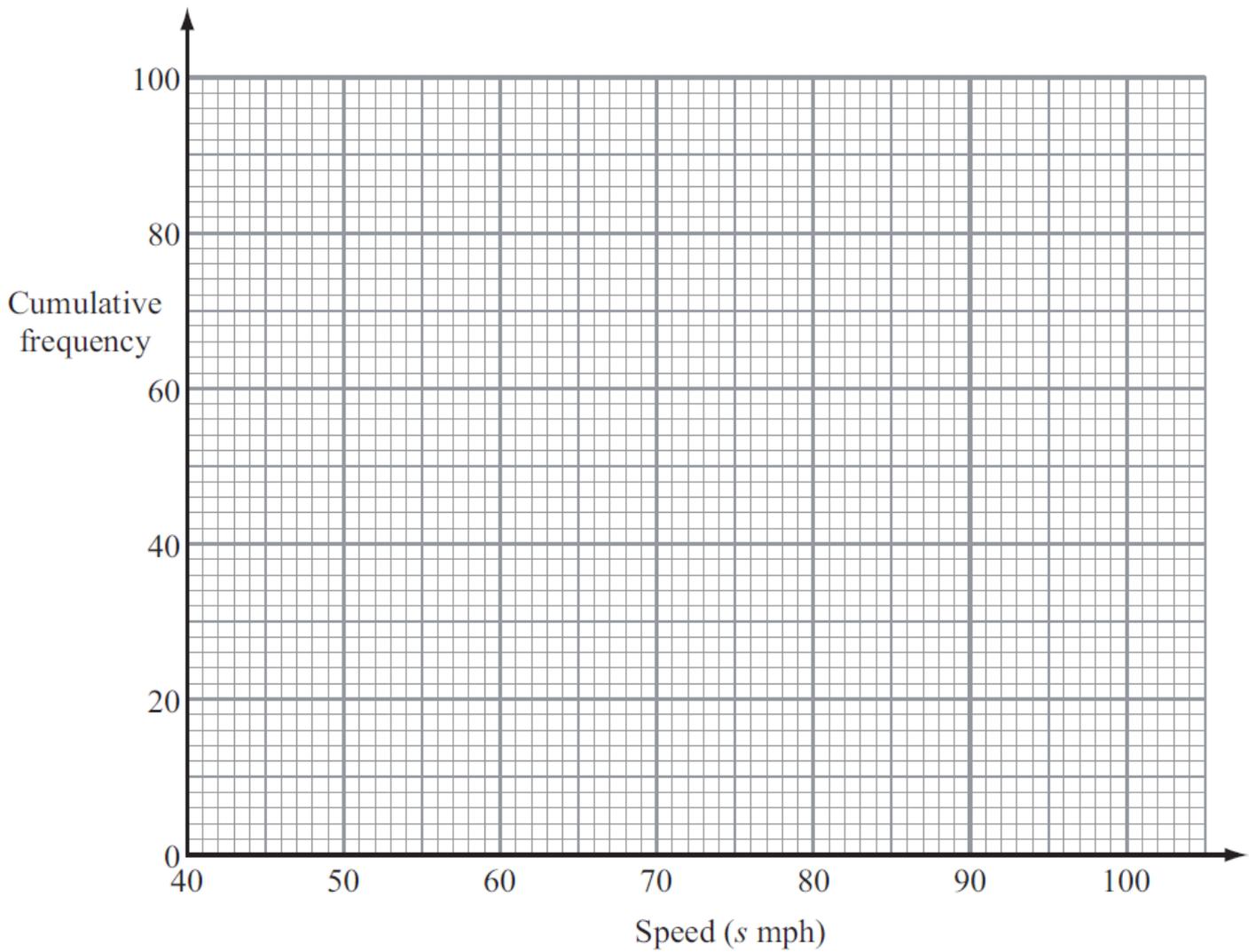
Speed (s mph)	Frequency
$40 < s \leq 50$	4
$50 < s \leq 60$	19
$60 < s \leq 70$	34
$70 < s \leq 80$	27
$80 < s \leq 90$	14
$90 < s \leq 100$	2

- (a) Complete the cumulative frequency table.

Speed (s mph)	Cumulative frequency
$40 < s \leq 50$	4
$40 < s \leq 60$	
$40 < s \leq 70$	
$40 < s \leq 80$	
$40 < s \leq 90$	
$40 < s \leq 100$	

(1)

(b) On the grid, draw a cumulative frequency graph for your table.



(2)

(c) Use your graph to find an estimate for the median speed.

..... mph
(1)

(d) Use your graph to find an estimate for the interquartile range.

..... mph
(2)

(Total 6 marks)

12 Here are the marks scored in a test by the girls in class 8C.

2 8 10 12 15 16 16 17 18 19 20

(a) Work out the interquartile range of the girls' marks.

.....
(2)

The boys in class 8C did the same test.

The boys' marks had a range of 19 and an interquartile range of 11 marks.

Gareth says that the girls' marks are more spread out than the boys' marks.

(b) Is Gareth right?

Tick (✓) the appropriate box.

Yes

No

Give a reason for your answer.

.....
.....
(1)

(Total for Question 12 is 3 marks)

- 11** 15 students took an English test.
The same 15 students took a Maths test.
Both tests were marked out of 30

For the English test results
the median was 21
the interquartile range was 14

The Maths test results are shown below.

18 18 19 20 24 25 25 26 28 28 29 29 29 30 30

Use the information above to compare the English test results with the Maths test results.
Write down **two** comparisons.

1.....

2.....

(Total for Question 11 is 4 marks)

17 (a) Simplify $\left(\frac{8e^6}{f^{12}}\right)^{\frac{1}{3}}$

Expand and simplify.

$$(2x - 1)(x + 5)(3x - 2)$$

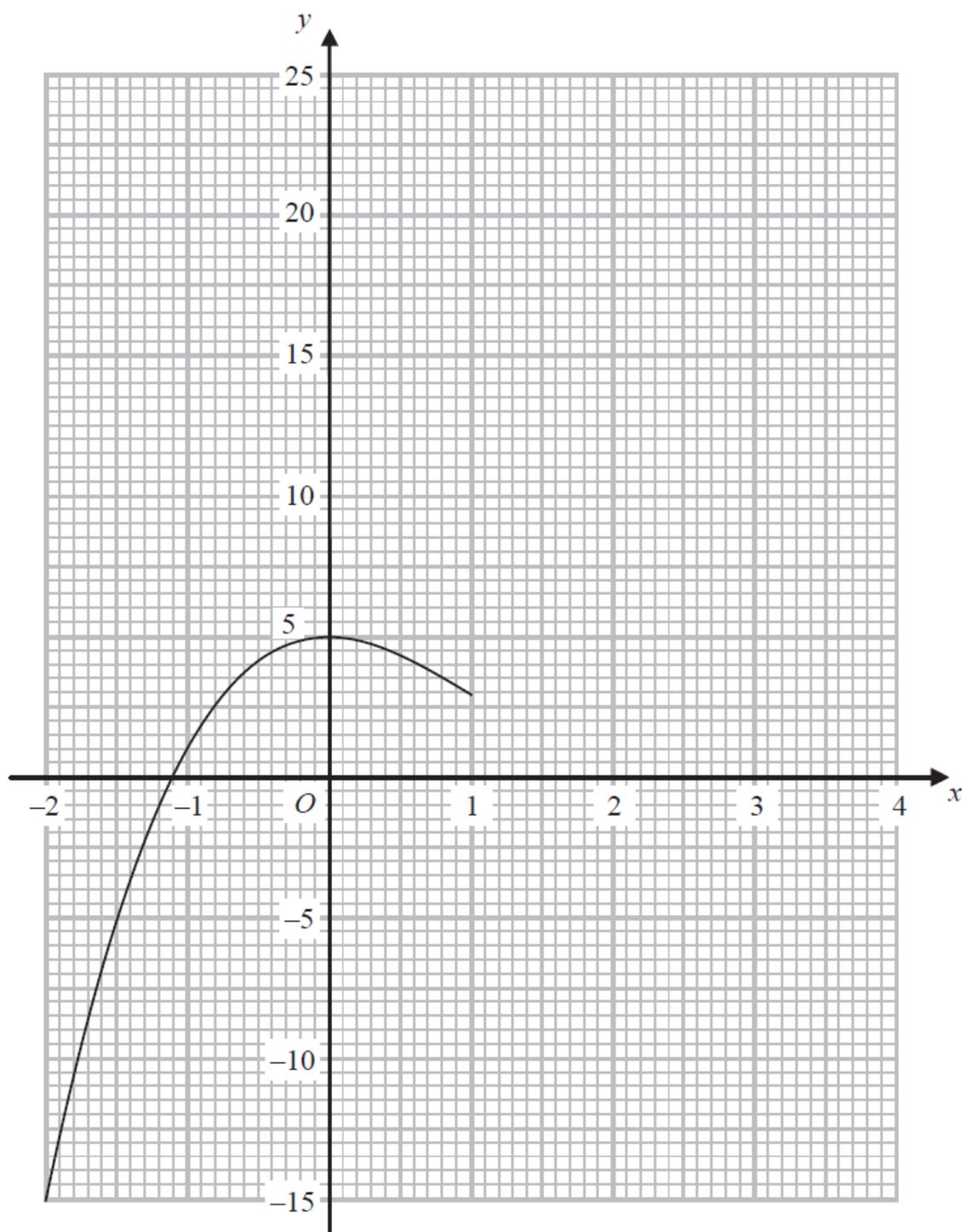
(b) [4]

15 (a) Complete the table of values for $y = x^3 - 3x^2 + 5$

x	-2	-1	0	1	2	3	4
y	-15	1	5	3			

(1)

(b) On the grid, complete the graph of $y = x^3 - 3x^2 + 5$ for $-2 \leq x \leq 4$



(1)

(c) Use the graph to find an estimate for the solution of the equation $x^3 - 3x^2 + 5 = 0$

$$x = \text{.....}$$

(1)

(d) By drawing a suitable straight line on the grid, find an estimate for the solution of the equation $x^3 - 3x^2 + 2x + 4 = 0$

$$x = \text{.....}$$

(3)

(Total for Question 15 is 6 marks)

The function f is such that

$$f(x) = \frac{3x - 5}{4}$$

(a) Find $f(-7)$

.....
(1)

(b) Express the inverse function f^{-1} in the form $f^{-1}(x) = \dots$

$$f^{-1}(x) = \dots$$

(2)

The function g is such that

$$g(x) = \sqrt{19 - x}$$

(c) Find $fg(3)$

.....
(2)

(d) Which values of x cannot be included in any domain of g ?

.....
(2)

Write as a single fraction in its simplest form

$$\frac{2}{y+3} - \frac{1}{y-6}$$

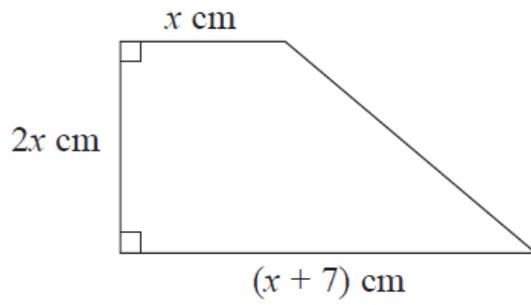


Diagram **NOT**
accurately drawn

The diagram shows a trapezium.
The trapezium has an area of 17 cm^2

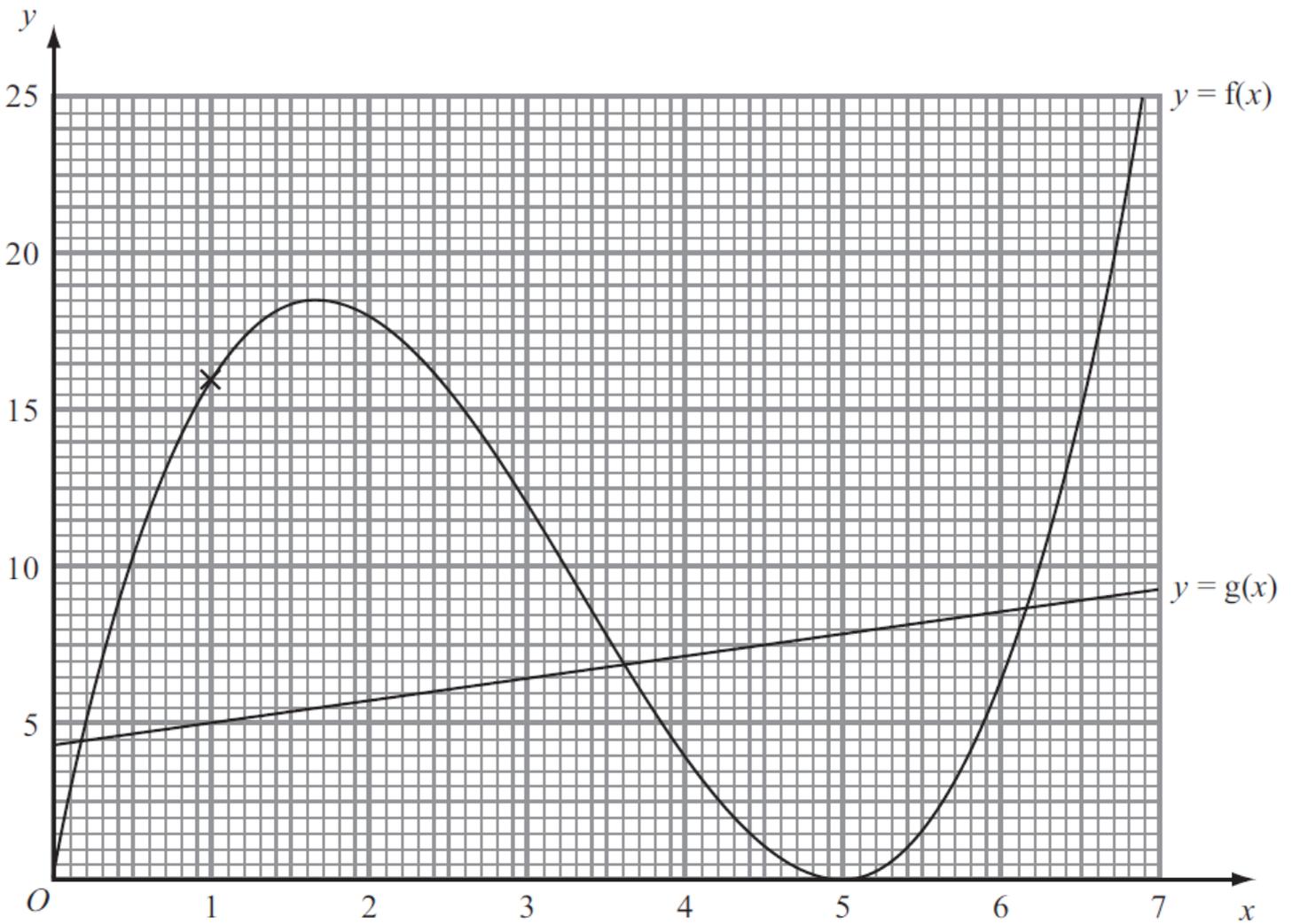
(a) Show that $2x^2 + 7x - 17 = 0$

(3)

(b) Work out the value of x .
Give your answer correct to 3 significant figures.
Show your working clearly.

$x = \dots\dots\dots$
(3)

15. The diagram shows part of the graph of $y = f(x)$ and part of the graph of $y = g(x)$.



(a) Find $f(3)$.

.....
(1)

(b) Solve $f(x) = g(x)$.
Give your answers correct to 1 decimal place.

.....
(2)

(c) Find $fg(1)$.

.....
(2)

(d) Find an estimate for the gradient of the graph of $y = f(x)$ at the point $(1, 16)$.

14 There are 31 students in a class.

The only languages available for the class to study are French and Spanish.

17 students study French.

15 students study Spanish.

6 students study neither French nor Spanish.

Using a Venn diagram, or otherwise, work out how many students study only one language.

.....
(Total for Question 14 is 4 marks)

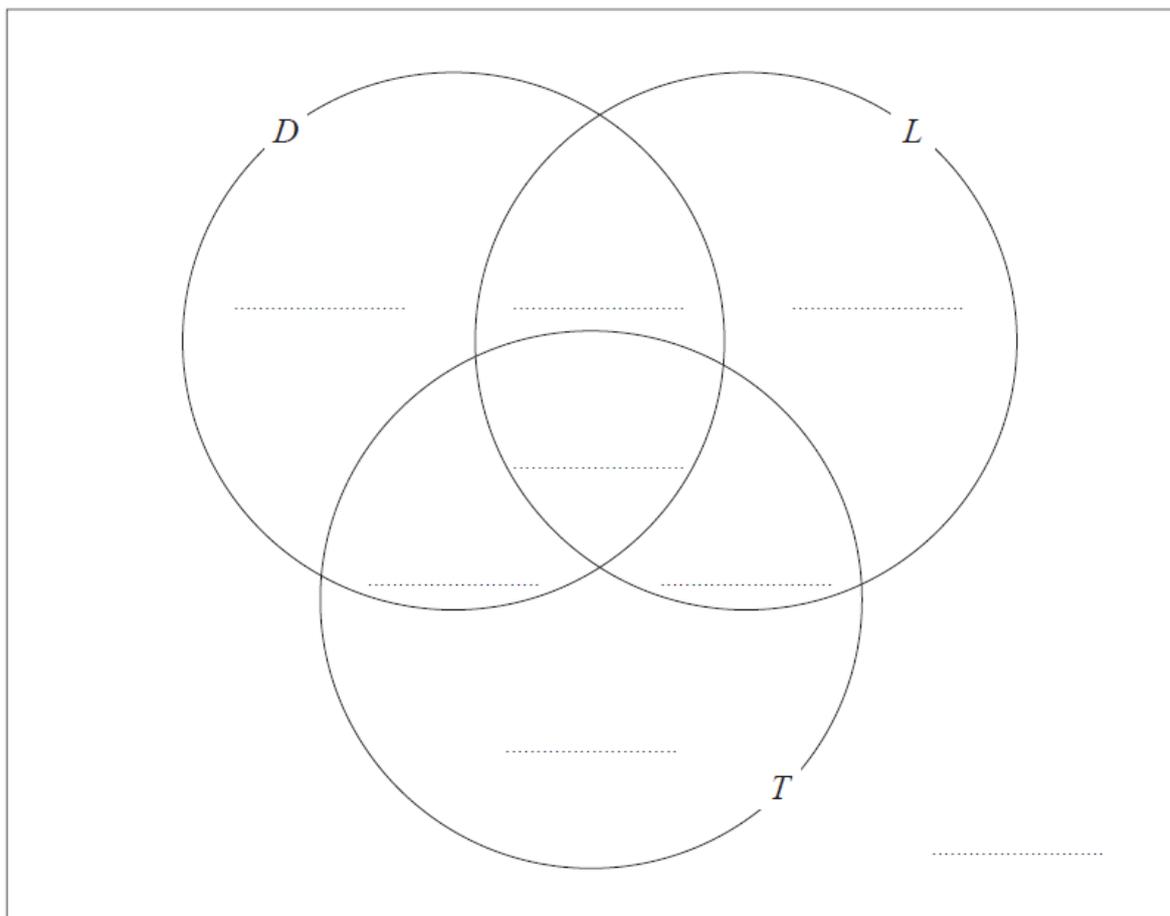
21 Each student in a group of 32 students was asked the following question.

“Do you have a desktop computer (D), a laptop (L) or a tablet (T)?”

Their answers showed that

- 19 students have a desktop computer
- 17 students have a laptop
- 16 students have a tablet
- 9 students have both a desktop computer and a laptop
- 11 students have both a desktop computer and a tablet
- 7 students have both a laptop and a tablet
- 5 students have all three.

(a) Using this information, complete the Venn diagram to show the number of students in each appropriate subset.



(3)

One of the students with both a desktop computer and a laptop is chosen at random.

(b) Find the probability that this student also has a tablet.

.....
(1)

(Total for Question 21 is 4 marks)

18 y is directly proportional to \sqrt{x}

When $x = 49$, $y = 4$

(a) Find a formula for y in terms of x .

.....
(3)

(b) Calculate the value of x when $y = 12$

$x =$
(2)

(Total for Question 18 is 5 marks)

20 R is **inversely** proportional to the square of c .

When $c = 4$, $R = 30$

(a) Find a formula for R in terms of c .

.....
(3)

(b) Calculate the positive value of c when $R = 1920$

$c =$
(2)

(Total for Question 20 is 5 marks)

Simplify $\frac{x^2 - 16}{2x^2 - 5x - 12}$

20 PTR and QTS are chords of a circle.

- $PT = 3$ cm.
- $ST = 10$ cm.
- $RT = 15$ cm.
- $QT = x$ cm.

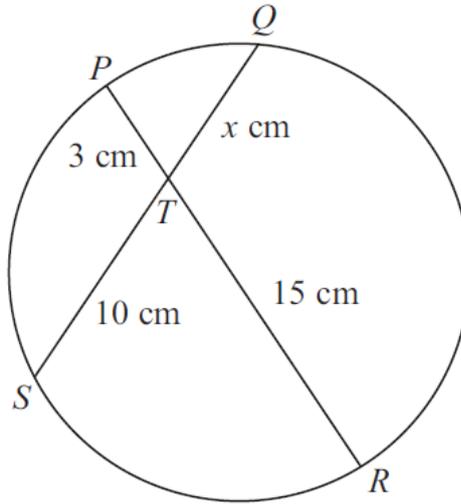


Diagram **NOT** accurately drawn

Calculate the value of x .

$x = \dots\dots\dots$

(Total for Question 20 is 2 marks)

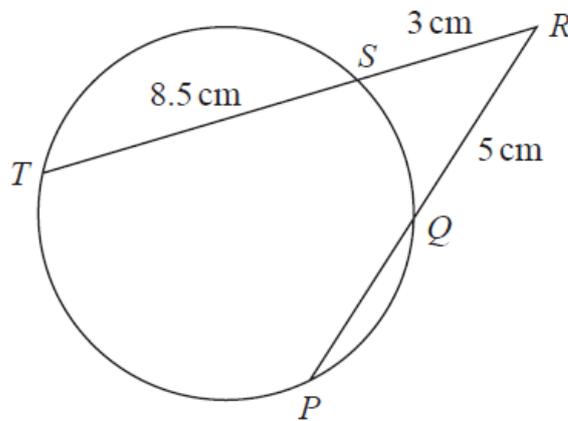


Diagram **NOT** accurately drawn

P , Q , S and T are points on a circle.
 TSR and PQR are straight lines.

Work out the length of PQ .

$\dots\dots\dots$ cm

(Total for Question 16 is 3 marks)

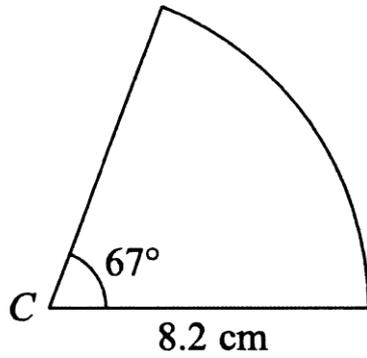


Diagram **NOT**
accurately drawn

The diagram shows a sector of a circle, centre C .
The radius of the circle is 8.2 cm.
The angle at the centre of the circle is 67° .

Calculate the area of the sector.
Give your answer correct to 3 significant figures.

..... cm^2

(Total 3 marks)

The diagram shows a sector of a circle of radius 6.8 cm.

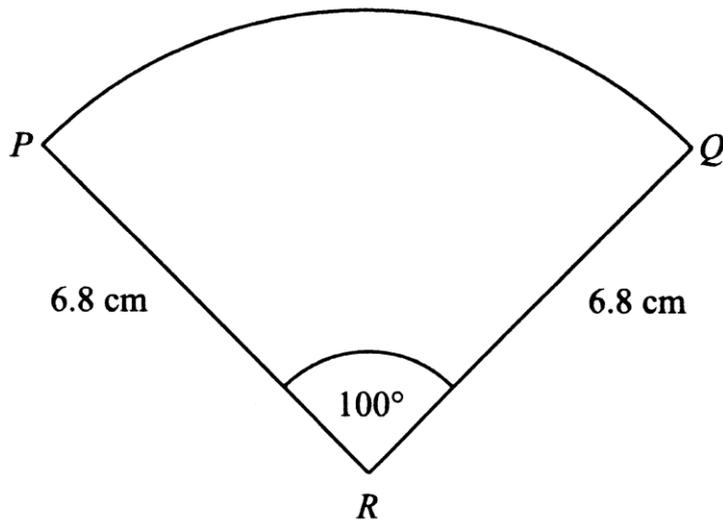


Diagram NOT
accurately drawn

PQ is an arc of the sector.

Angle $PRQ = 100^\circ$.

Work out the perimeter of the sector.

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 22 is 3 marks)

$$\frac{x}{x+c} = \frac{p}{q}$$

Make x the subject of the formula.

$$x = \dots\dots\dots$$

(Total 4 marks)

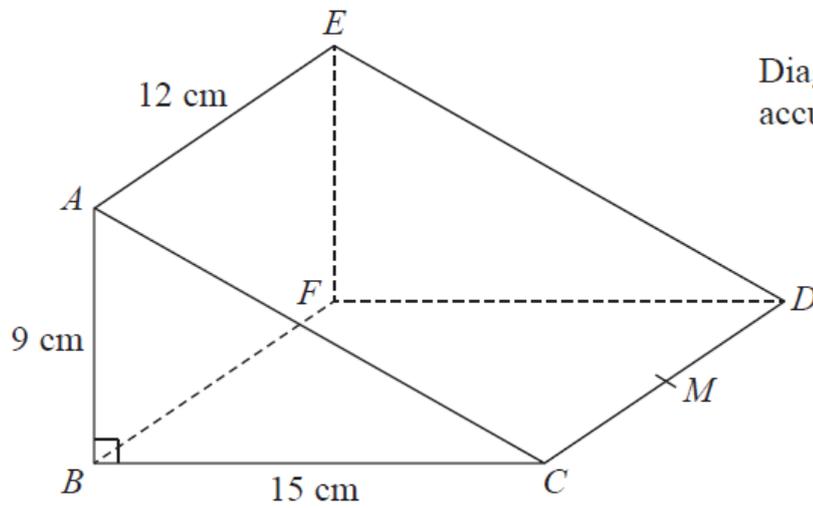


Diagram NOT
accurately drawn

$ABCDEF$ is a triangular prism.

$AB = 9$ cm, $BC = 15$ cm and $AE = 12$ cm.

Angle $ABC = 90^\circ$

M is the midpoint of CD .

Calculate the size of the angle between AM and the plane $BCDF$.

Give your answer correct to 1 decimal place.

The curve **C** has equation $y = 2x^3 - 6x$

(a) Find $\frac{dy}{dx}$

$$\frac{dy}{dx} = \dots\dots\dots$$

(2)

(b) Work out the gradient of **C** at the point (2, 4)

\dots\dots\dots

(1)

(c) Find the x coordinates of the points on **C** where the gradient of the curve is $7\frac{1}{2}$
Show clear algebraic working.

\dots\dots\dots

(3)

(Total for Question 17 is 6 marks)

Grade 8 - 9

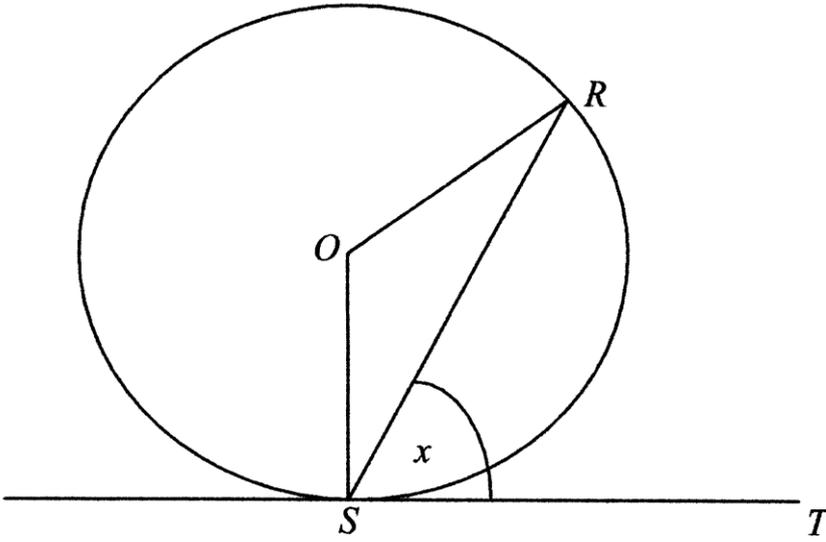
23 $ABCD$ is a parallelogram.

$$\vec{AB} = \begin{pmatrix} 2 \\ 3 \end{pmatrix} \quad \vec{AC} = \begin{pmatrix} 9 \\ 4 \end{pmatrix}$$

Find the magnitude of \vec{BC}

(Total for Question 23 is 3 marks)

Diagram **NOT**
accurately drawn



R and *S* are two points on a circle, centre *O*.
TS is a tangent to the circle.
Angle $RST = x$.

Prove that angle $ROS = 2x$.
You must give reasons for each stage of your working.

(Total 4 marks)

$$y = x^3 - 6x^2 - 15x$$

(a) Find $\frac{dy}{dx}$

$$\frac{dy}{dx} = \dots\dots\dots$$

(2)

The curve with equation $y = x^3 - 6x^2 - 15x$ has two stationary points.

(b) Work out the coordinates of these two stationary points.

(..... ,))

(..... ,))

(4)

(Total for Question 12 is 6 marks)

21. A coin is biased so that the probability that it shows heads on any one throw is p . The coin is thrown twice.

The probability that the coin shows heads exactly once is $\frac{8}{25}$

Show that $25p^2 - 25p + 4 = 0$

(Total 3 marks)

- 20** Prove algebraically that the difference between the squares of any two consecutive odd numbers is always a multiple of 8

(Total for Question 20 is 4 marks)

- 21** Prove that

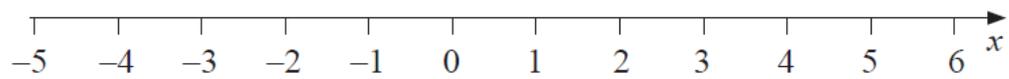
$$(2n + 3)^2 - (2n - 3)^2 \text{ is a multiple of } 8$$

for all positive integer values of n .

Solve $x^2 + 3x - 10 \leq 0$

.....
(3)

(b) Represent your solution set to part (a) on the number line below.



(1)

Solve $(5 - x)(2 + x) \leq 0$

.....
(2)

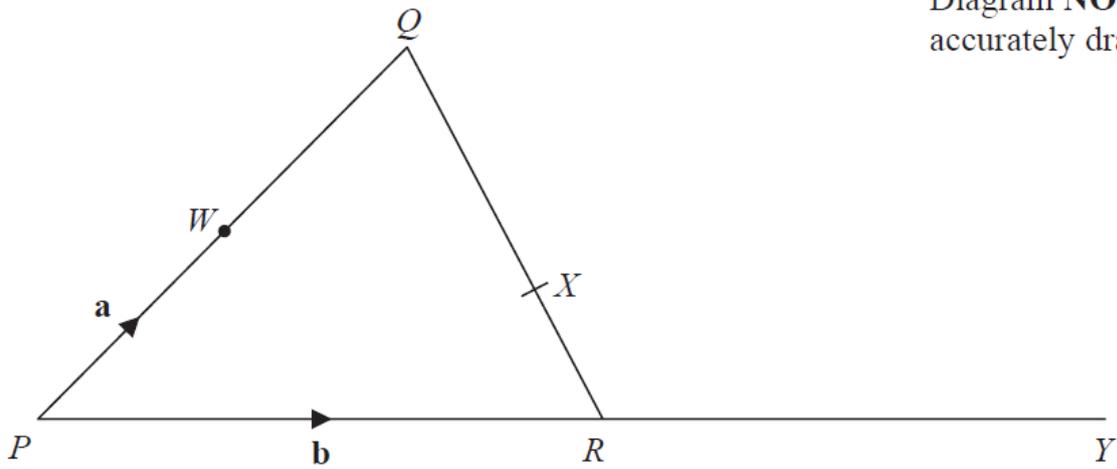
Rationalise the denominator of $\frac{5 + \sqrt{5}}{5 - \sqrt{5}}$

Give your answer in the form $\frac{a + \sqrt{5}}{b}$ where a and b are integers.

.....
(Total for Question 19 is 4 marks)

Show that $(7 - 2\sqrt{5})(7 + 2\sqrt{5}) = 29$

Show your working clearly.



PQR is a triangle.

The midpoint of PQ is W .

X is the point on QR such that $QX:XR = 2:1$

PRY is a straight line.

$$\overrightarrow{PW} = \mathbf{a} \quad \overrightarrow{PR} = \mathbf{b}$$

(a) Find, in terms of \mathbf{a} and \mathbf{b} ,

(i) \overrightarrow{QR}

.....

(ii) \overrightarrow{QX}

.....

(iii) \overrightarrow{WX}

.....

(3)

R is the midpoint of the straight line PRY .

(b) Use a vector method to show that WXY is a straight line.

(2)

(Total for Question 18 is 5 marks)

Grade 9

Write $5 - (x + 2) \div \left(\frac{x^2 - 4}{x - 3} \right)$ as a single fraction.

Simplify your answer fully.

(Total for Question 23 is 4 marks)

Express $\frac{2\sqrt{7} - 1}{2\sqrt{7} + 5}$ in the form $m + n\sqrt{7}$, where m and n are integers. (4 marks)

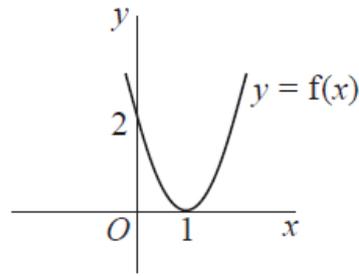
Solve the simultaneous equations

$$x + 4y = 7$$

$$x^2 + 2y = 26$$

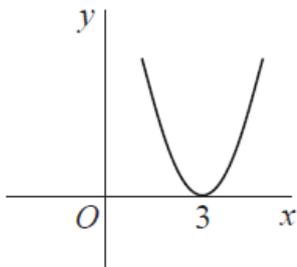
(Total for Question 8 is 6 marks)

25 Here is the graph of $y = f(x)$.

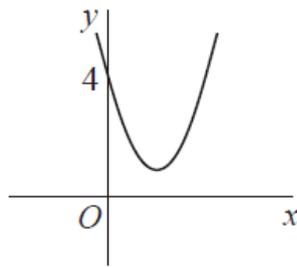


Each of the graphs A, B, C, D, E and F is a transformation of the graph of $y = f(x)$.

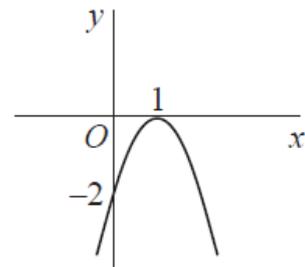
Graph A



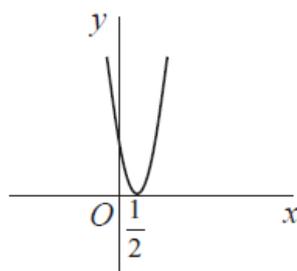
Graph B



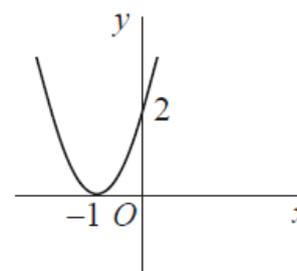
Graph C



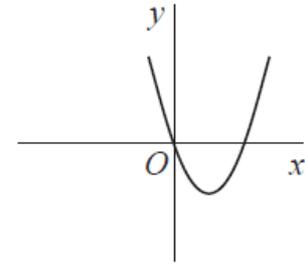
Graph D



Graph E



Graph F



Match each of the graphs A, B, C, D, E and F to its equation in the table.

Equation	Graph
$y = f(x) + 2$	
$y = f(-x)$	
$y = f(2x)$	
$y = -f(x)$	
$y = f(x - 2)$	
$y = f(x) - 2$	

(Total for Question 25 is 3 marks)