

COORDINATES

Pearson Edexcel – Thursday 4 June 2020 - Paper 2 (Calculator) Higher Tier

1.

17 Write down the coordinates of the turning point on the graph of $y = (x + 12)^2 - 7$

(.....,))

(Total for Question 17 is 1 mark)

Pearson Edexcel - Tuesday 21 May 2019 - Paper 1 (Non-Calculator) Higher Tier

2.

19 Given that $x^2 - 6x + 1 = (x - a)^2 - b$ for all values of x ,

(i) find the value of a and the value of b .

$a =$

$b =$
(2)

(ii) Hence write down the coordinates of the turning point on the graph of $y = x^2 - 6x + 1$

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

(Total for Question 19 is 3 marks)

Pearson Edexcel - Tuesday 11 June 2019 - Paper 3 (Calculator) Higher Tier

3.

- 15 The graph of the curve C with equation $y = f(x)$ is transformed to give the graph of the curve S with equation $y = f(-x) - 3$

The point on C with coordinates $(7, 2)$ is mapped to the point Q on S .

Find the coordinates of Q .

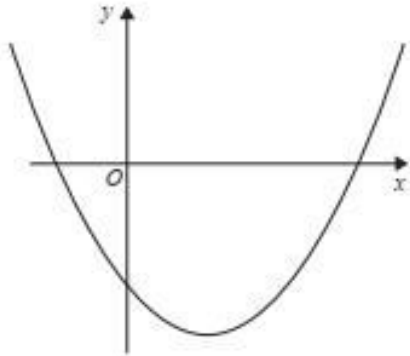
(.....,))

(Total for Question 15 is 2 marks)

Pearson Edexcel - Tuesday 6 November 2018 - Paper 1 (Non-Calculator) Higher Tier

4.

17 Here is a sketch of a curve.



The equation of the curve is $y = x^2 + ax + b$ where a and b are integers.

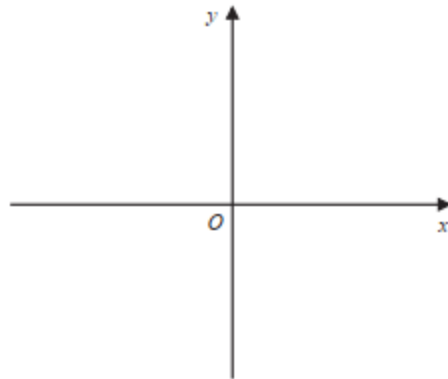
The points $(0, -5)$ and $(5, 0)$ lie on the curve.

Find the coordinates of the turning point of the curve.

(.....,))

(Total for Question 17 is 4 marks)

- 14 On the grid, sketch the curve with equation $y = 2^x$
Give the coordinates of any points of intersection with the axes.



(Total for Question 14 is 2 marks)

Pearson Edexcel - Thursday 8 November 2018 - Paper 2 (Calculator) Higher Tier

6.

- 18 The straight line L_1 passes through the points with coordinates (4, 6) and (12, 2)
The straight line L_2 passes through the origin and has gradient -3

The lines L_1 and L_2 intersect at point P .

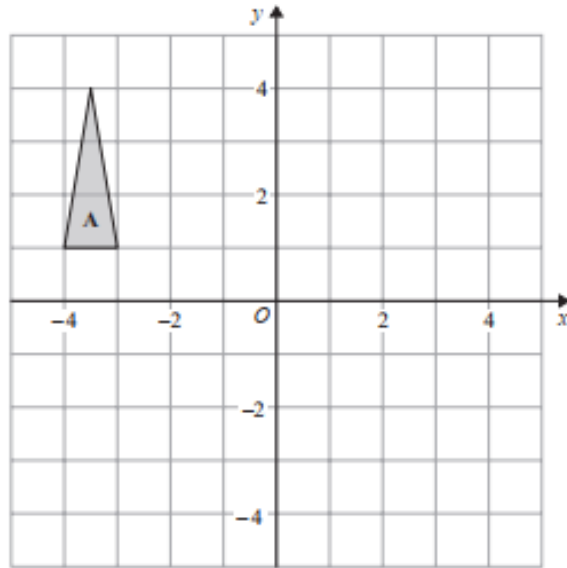
Find the coordinates of P .

(.....,))

(Total for Question 18 is 4 marks)

7.

20



Triangle A is transformed by the combined transformation of a rotation of 180° about the point $(-2, 0)$ followed by a translation with vector $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$

One point on triangle A is invariant under the combined transformation.

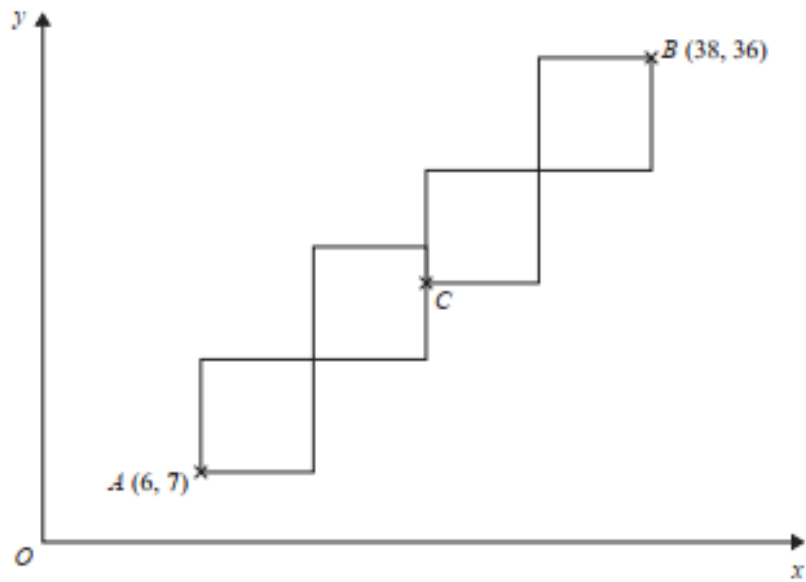
Find the coordinates of this point.

(.....,))

(Total for Question 20 is 2 marks)

8.

- 6 A pattern is made from four identical squares.
The sides of the squares are parallel to the axes.



Point *A* has coordinates (6, 7)
Point *B* has coordinates (38, 36)
Point *C* is marked on the diagram.

Work out the coordinates of *C*.

(.....,))

(Total for Question 6 is 5 marks)

- 20 The equation of a curve is $y = a^x$
 A is the point where the curve intersects the y -axis.
(a) State the coordinates of A .

(.....,)
(1)

The equation of circle C is $x^2 + y^2 = 16$

The circle C is translated by the vector $\begin{pmatrix} 3 \\ 0 \end{pmatrix}$ to give circle B .

- (b) Draw a sketch of circle B .

Label with coordinates
the centre of circle B
and any points of intersection with the x -axis.

(3)

(Total for Question 20 is 4 marks)

23 (a) Write $2x^2 + 16x + 35$ in the form $a(x + b)^2 + c$ where a , b , and c are integers.

(3)

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph of $y = 2x^2 + 16x + 35$

(1)

(Total for Question 23 is 4 marks)

Pearson Edexcel - Specimen Papers Set 1 - Paper 3 (Calculator) Higher Tier

11.

16 The graph of $y = f(x)$ is transformed to give the graph of $y = -f(x + 3)$
The point A on the graph of $y = f(x)$ is mapped to the point P on the graph of $y = -f(x + 3)$

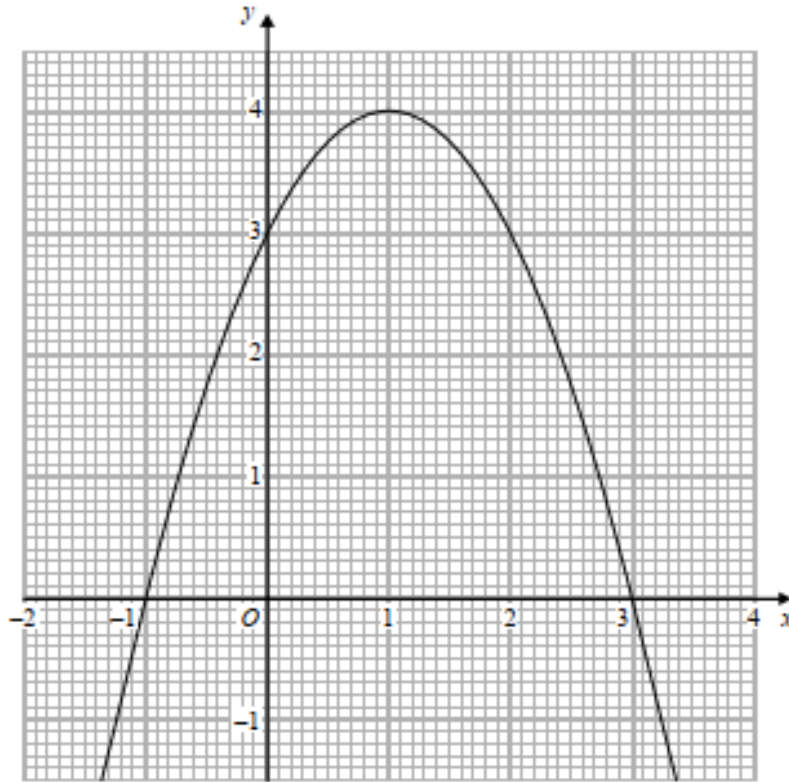
The coordinates of point A are $(9, 1)$
Find the coordinates of point P .

(.....,))

(Total for Question 16 is 2 marks)

12.

7 The graph of $y = f(x)$ is drawn on the grid.



(a) Write down the coordinates of the turning point of the graph.

(.....,)
(1)

(b) Write down the roots of $f(x) = 2$

.....
(1)

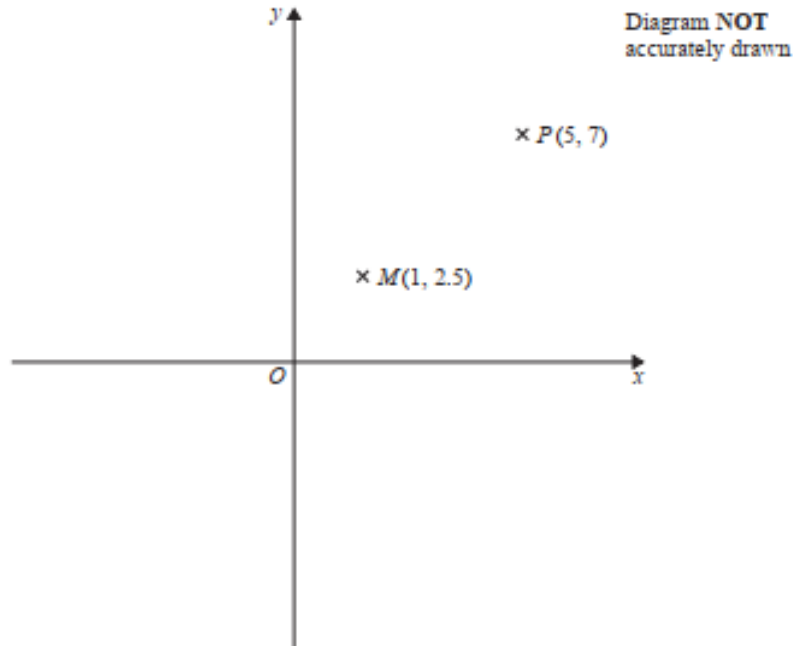
(c) Write down the value of $f(0.5)$

.....
(1)

(Total for Question 7 is 3 marks)

13.

10



Point P has coordinates $(5, 7)$.
Point M has coordinates $(1, 2.5)$.

Point M is the midpoint of the line PQ .

Find the coordinates of point Q .

(.....,))

(Total for Question 10 is 2 marks)

14.

15 A and B are two points.

Point A has coordinates $(-2, 4)$.

Point B has coordinates $(8, 9)$.

C is the midpoint of the line segment AB .

(a) Find the coordinates of C .

(.....,)
(2)

D is the point with coordinates $(100, 56)$.

*(b) Does point D lie on the straight line that passes through A and B ?
You must show how you work out your answer.

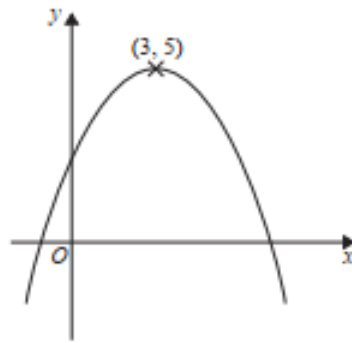
(3)

(Total for Question 15 is 5 marks)

Pearson Edexcel - Thursday 4 June 2015 - Paper 1 (Non-Calculator) Higher Tier

15.

24



The diagram shows part of the curve with equation $y = f(x)$.
The coordinates of the maximum point of the curve are $(3, 5)$.

(a) Write down the coordinates of the maximum point of the curve with equation

(i) $y = f(x + 3)$

(.....,) (1)

(ii) $y = 2f(x)$

(.....,) (1)

(iii) $y = f(3x)$

(.....,) (3)

The curve with equation $y = f(x)$ is transformed to give the curve with equation $y = f(x) - 4$

(b) Describe the transformation.

(1)

(Total for Question 24 is 4 marks)

12 The points A , B and C lie in order on a straight line.

The coordinates of A are $(2, 5)$

The coordinates of B are $(4, p)$

The coordinates of C are $(q, 17)$

Given that $AC = 4AB$, find the values of p and q .

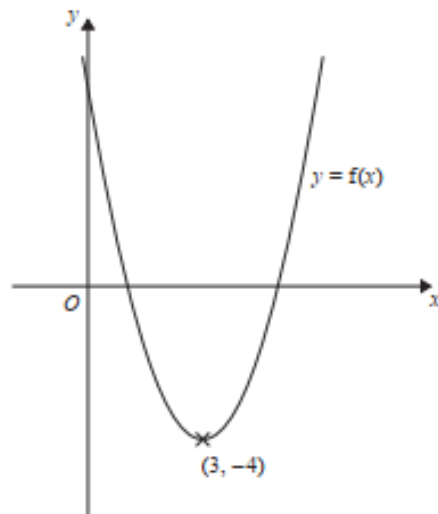
$p =$

$q =$

(Total for Question 12 is 3 marks)

Pearson Edexcel - Wednesday 5 November 2014 - Paper 1 (Non-Calculator) Higher Tier

17.



The diagram shows part of the curve with equation $y = f(x)$.
The coordinates of the minimum point of this curve are $(3, -4)$

Write down the coordinates of the minimum point of the curve with equation

(i) $y = f(x) + 3$

(.....,))

(ii) $y = f(2x)$

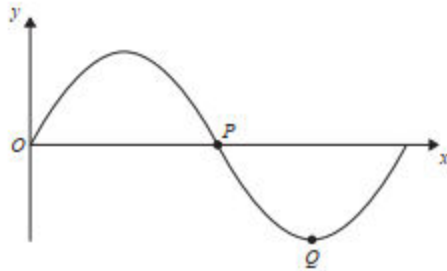
(.....,))

(iii) $y = f(-x)$

(.....,))

(Total for Question 25 is 3 marks)

26 The diagram shows part of a sketch of the curve $y = \sin x^\circ$.



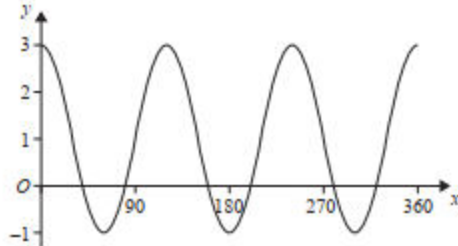
(a) Write down the coordinates of the point P .

(.....,)
(1)

(b) Write down the coordinates of the point Q .

(.....,)
(1)

Here is a sketch of the curve $y = a \cos bx^\circ + c$, $0 \leq x \leq 360$



(c) Find the values of a , b and c .

$a =$

$b =$

$c =$
(3)

(Total for Question 26 is 5 marks)

- 1 The point A has coordinates $(2, 3)$.
The point B has coordinates $(6, 8)$.

M is the midpoint of the line AB .

Find the coordinates of M .

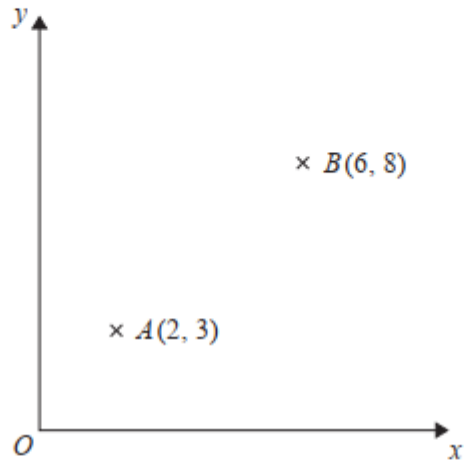


Diagram **NOT**
accurately drawn

(Total for Question 1 is 2 marks)

19 Here is a cuboid drawn on a 3-D grid.

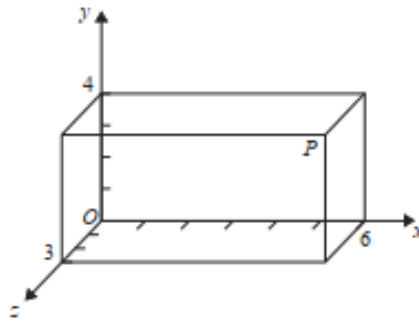


Diagram NOT
accurately drawn

P is a vertex of the cuboid.

T divides the line OP in the ratio $1:2$

Find the coordinates of T .

(.....,,)

(Total for Question 19 is 2 marks)

Pearson Edexcel - Wednesday 6 November 2013 - Paper 1 (Non-Calculator) Higher Tier

21.

17 AB is a line segment.

A is the point with coordinates $(3, 6, 7)$.

The midpoint of AB has coordinates $(-2, 2, 5)$.

Find the coordinates of B .

(Total for Question 17 is 2 marks)

22.

25 The expression $x^2 - 8x + 21$ can be written in the form $(x - a)^2 + b$ for all values of x .

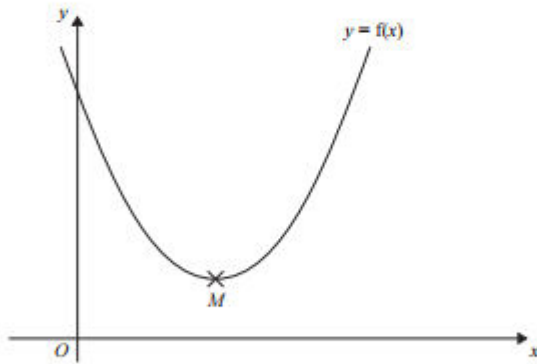
(a) Find the value of a and the value of b .

$a =$ _____

$b =$ _____
(3)

The equation of a curve is $y = f(x)$ where $f(x) = x^2 - 8x + 21$

The diagram shows part of a sketch of the graph of $y = f(x)$.



The minimum point of the curve is M .

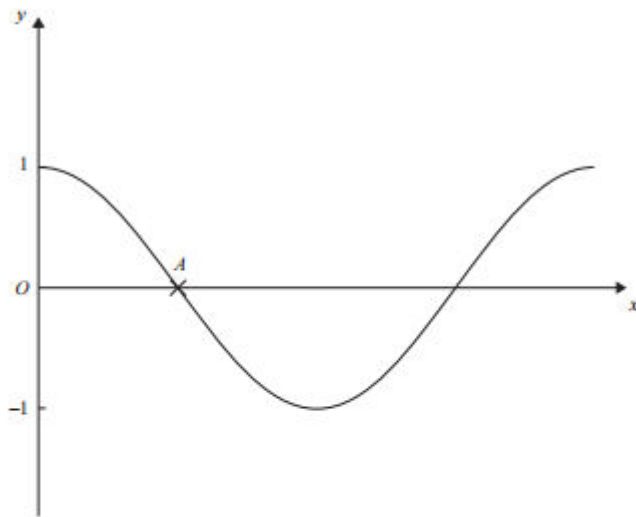
(b) Write down the coordinates of M .

(_____, _____)
(1)

(Total for Question 25 is 4 marks)

23.

28 The diagram shows a sketch of the graph of $y = \cos x^\circ$



(a) Write down the coordinates of the point A .

(.....,)
(1)

(b) On the same diagram, draw a sketch of the graph of $y = 2 \cos x^\circ$

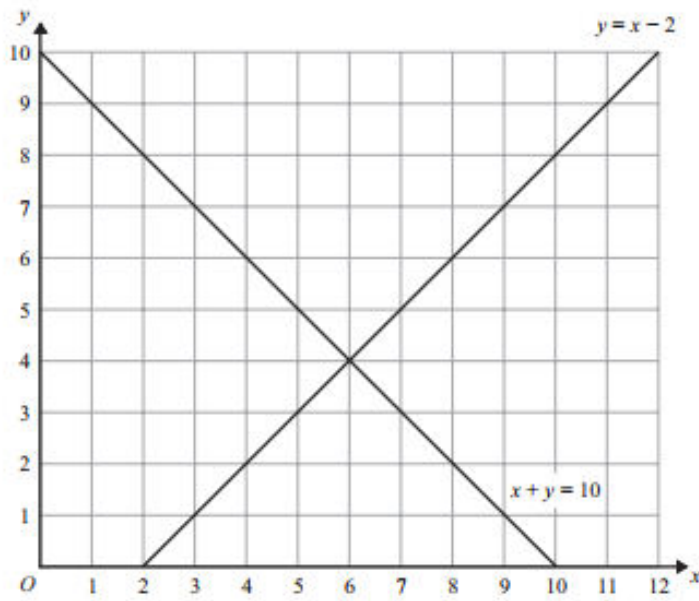
(1)

(Total for Question 28 is 2 marks)

Pearson Edexcel - Tuesday 6 November 2012 - Paper 1 (Non-Calculator) Higher Tier

24.

17 The lines $y = x - 2$ and $x + y = 10$ are drawn on the grid.



On the grid, mark with a cross (×) each of the points with integer coordinates that are in the region defined by

$$\begin{aligned} y &> x - 2 \\ x + y &< 10 \\ x &> 3 \end{aligned}$$

(Total for Question 17 is 3 marks)

Pearson Edexcel - Tuesday 9 November 2010 - Paper 3 (Non-Calculator) Higher Tier

25.

14.

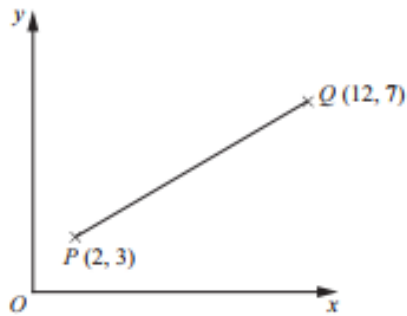


Diagram NOT
accurately drawn

P is the point with coordinates $(2, 3)$.
 Q is the point with coordinates $(12, 7)$.

Work out the coordinates of the midpoint of the line PQ .

(.....,))

(Total 2 marks)

Pearson Edexcel - Friday 12 November 2010 - Paper 4 (Calculator) Higher Tier

26.

16. G and H are vertices of a cuboid.

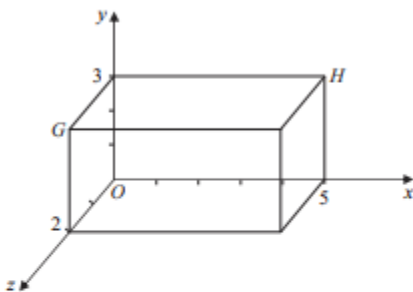


Diagram NOT
accurately drawn

(a) Write down the coordinates of point G .

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

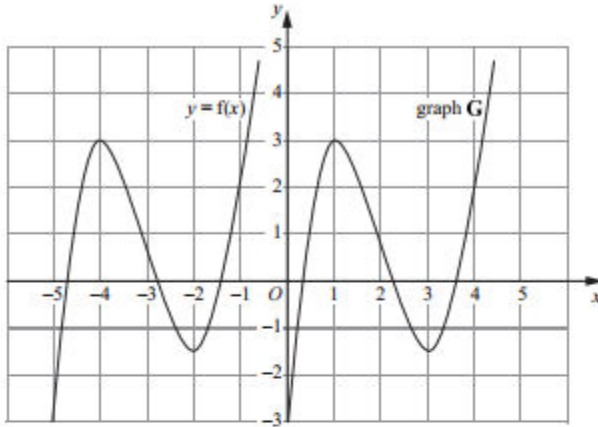
(b) Write down the coordinates of point H .

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

(Total 2 marks)

27.

27. The graph of $y = f(x)$ is shown on the grid.



The graph G is a translation of the graph of $y = f(x)$.

(a) Write down, in terms of f , the equation of graph G.

$y = \dots\dots\dots$ (1)

The graph of $y = f(x)$ has a maximum point at $(-4, 3)$.

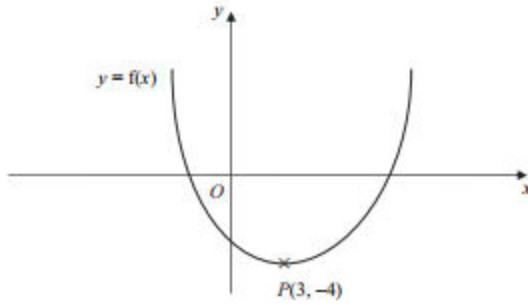
(b) Write down the coordinates of the maximum point of the graph of $y = f(-x)$.

$(\dots\dots\dots, \dots\dots\dots)$ (2)

(Total 3 marks)

28.

24. This is a sketch of the curve with the equation $y = f(x)$.
The only minimum point of the curve is at $P(3, -4)$.



- (a) Write down the coordinates of the minimum point of the curve with the equation $y = f(x - 2)$

(.....,)
(2)

- (b) Write down the coordinates of the minimum point of the curve with the equation $y = f(x + 5) + 6$

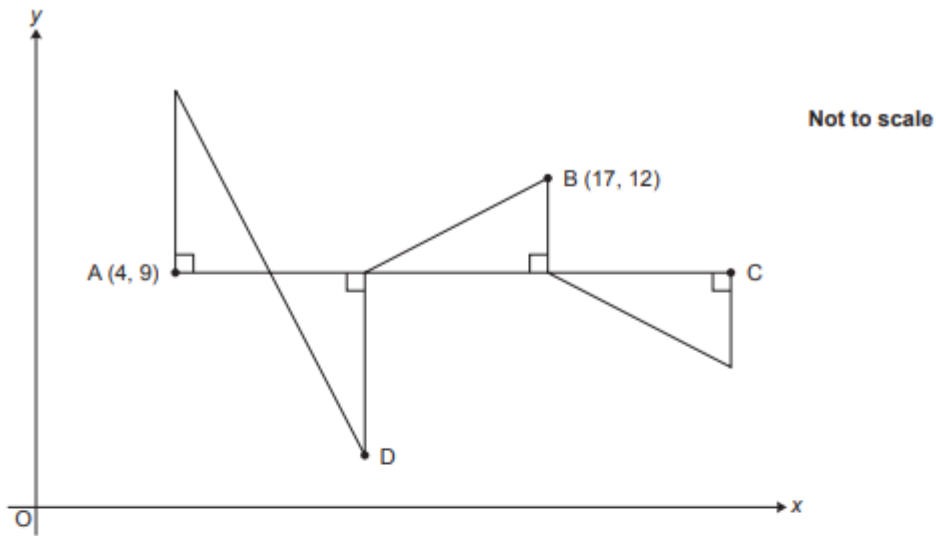
(.....,)
(2)

(Total 4 marks)

OCR GCSE – Thursday 5 November 2020 – Paper 5 (Non-Calculator) Higher Tier

29.

7 A pattern is made from four congruent right-angled triangles.



The line AC is parallel to the x-axis.

The point A has coordinates (4, 9) and the point B has coordinates (17, 12).

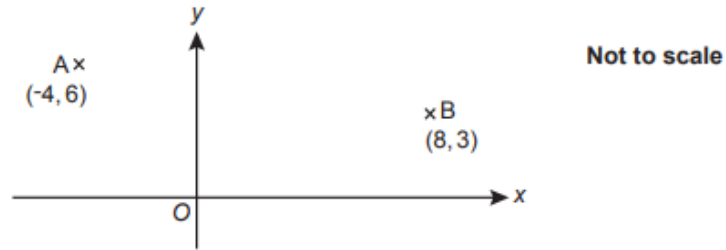
Work out the coordinates of point C and point D.

C (..... ,))

D (..... ,) [5]

30.

- 5 Point A has coordinates $(-4, 6)$ and point B has coordinates $(8, 3)$.



- (a) (i) Find the gradient of line AB.

(a)(i) [2]

- (ii) Find the equation of line AB.

(ii) [2]

- (b) Point P has coordinates $(0, -2)$.

Write down the equation of the line parallel to line AB that passes through P.

(b) [2]

AQA GCSE – Thursday 8 November 2018 – Paper 2 (Calculator) Higher Tier

31.

- 2 P is $(4, 9)$ and Q is $(-2, 1)$
Circle the midpoint of PQ .

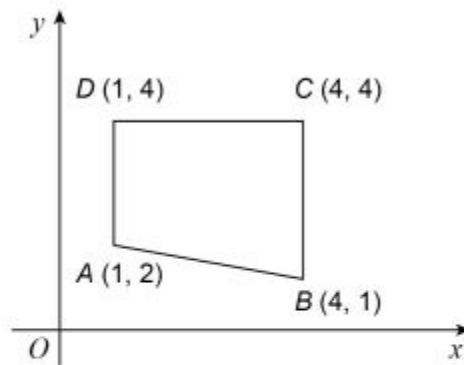
[1 mark]

$(1, 5)$ $(3, 4)$ $(3, 5)$ $(6, 8)$

AQA GCSE – Monday 12 November 2018 – Paper 3 (Calculator) Higher Tier

32.

- 25 $ABCD$ is a quadrilateral.



Not drawn
accurately

The quadrilateral is reflected in the line $x = 4$

Which vertices are invariant?

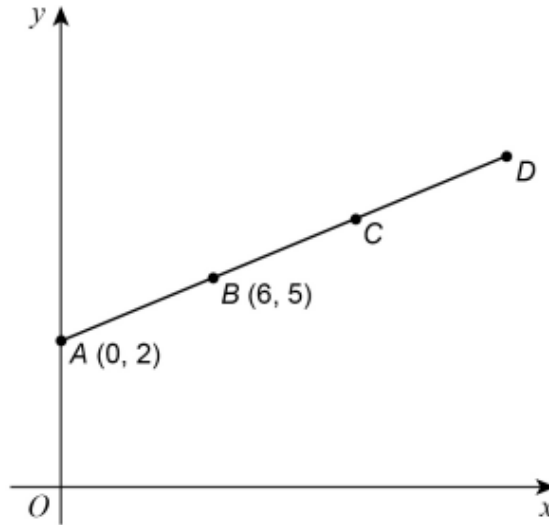
Circle your answer.

[1 mark]

A and D C and D B and C B and D

33.

7 $A(0, 2)$ and $B(6, 5)$ are points on the straight line $ABCD$.



Not drawn accurately

$$AB = BC = CD$$

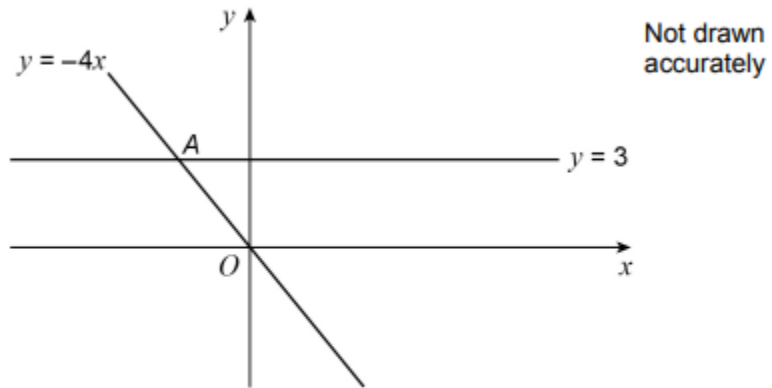
Work out the coordinates of D .

[3 marks]

Answer (_____ , _____)

34.

16 Two straight lines intersect at point A.



Circle the coordinates of A.

[1 mark]

$(-\frac{3}{4}, 3)$

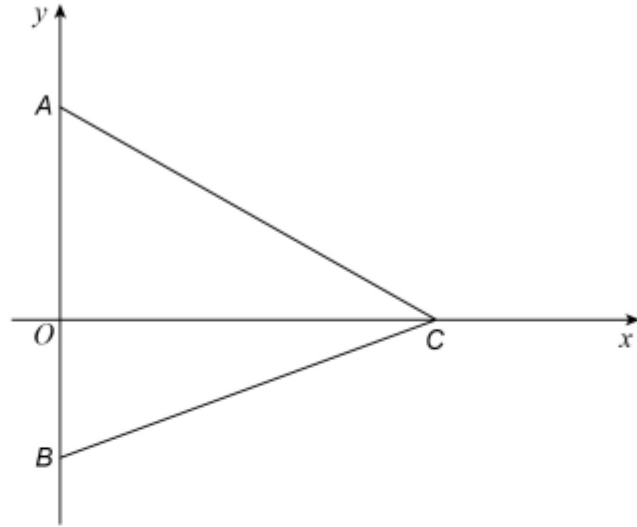
$(-4, 3)$

$(-12, 3)$

$(-\frac{4}{3}, 3)$

35.

21 A , B and C are points on the axes as shown.



Not drawn accurately

The area of triangle ABC is 28 square units.

Work out possible coordinates for A , B and C .

[2 marks]

A (_____ , _____) B (_____ , _____) C (_____ , _____)

AQA GCSE – Thursday 2 November 2017 – Paper 1 (Non - Calculator) Higher Tier

36.

23 The equation of a curve is $y = (x + 3)^2 + 5$

Circle the coordinates of the turning point.

[1 mark]

(5, 3)

(5, -3)

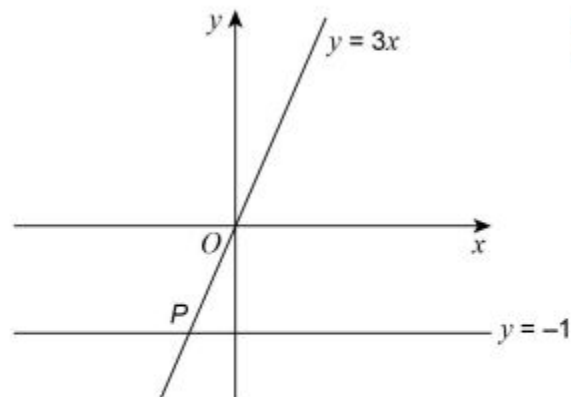
(3, 5)

(-3, 5)

AQA GCSE – Thursday 6 November 2017 – Paper 2 (Calculator) Higher Tier

37.

13 Two straight lines intersect at point P .



Circle the coordinates of P .

[1 mark]

(-3, -1)

$\left(-1, -\frac{1}{3}\right)$

(-1, -3)

$\left(-\frac{1}{3}, -1\right)$

AQA GCSE – Thursday 8 June 2017 – Paper 2 (Calculator) Higher Tier

38.

- 3** A is $(2, 12)$ and B is $(8, 2)$
Circle the midpoint of AB .

[1 mark]

$(3, 5)$

$(4, 6)$

$(5, 7)$

$(6, 10)$

AQA GCSE – Tuesday 13 June 2017 – Paper 3 (Calculator) Higher Tier

39.

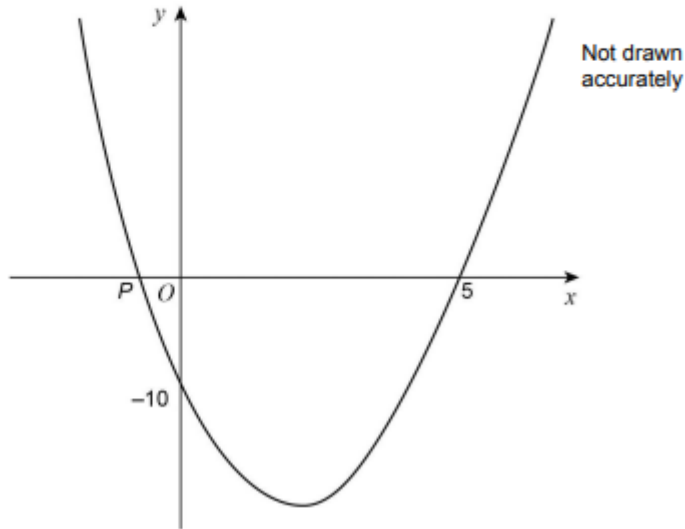
23

Here is a sketch of $y = x^2 + bx + c$

The curve intersects

the x -axis at $(5, 0)$ and point P

the y -axis at $(0, -10)$



Work out the x -coordinate of the turning point of the graph.

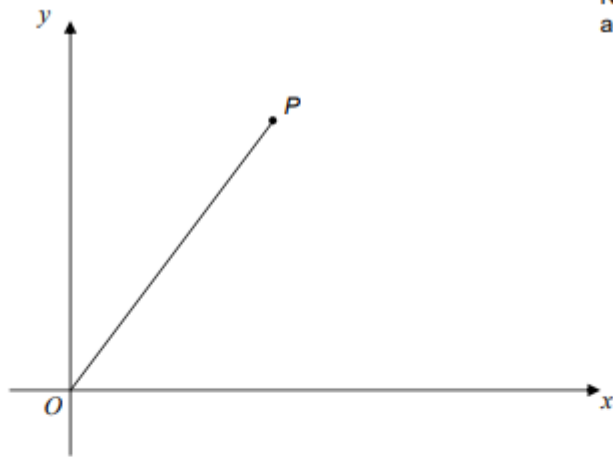
[4 marks]

Answer _____

AQA GCSE – Sample Paper 3 (Calculator) Higher Tier

40.

28 The diagram shows a line joining O to P .



Not drawn accurately

The gradient of the line is 2

The length of the line is $\sqrt{2645}$

Work out the coordinates of P .

[4 marks]

Answer (_____ , _____)