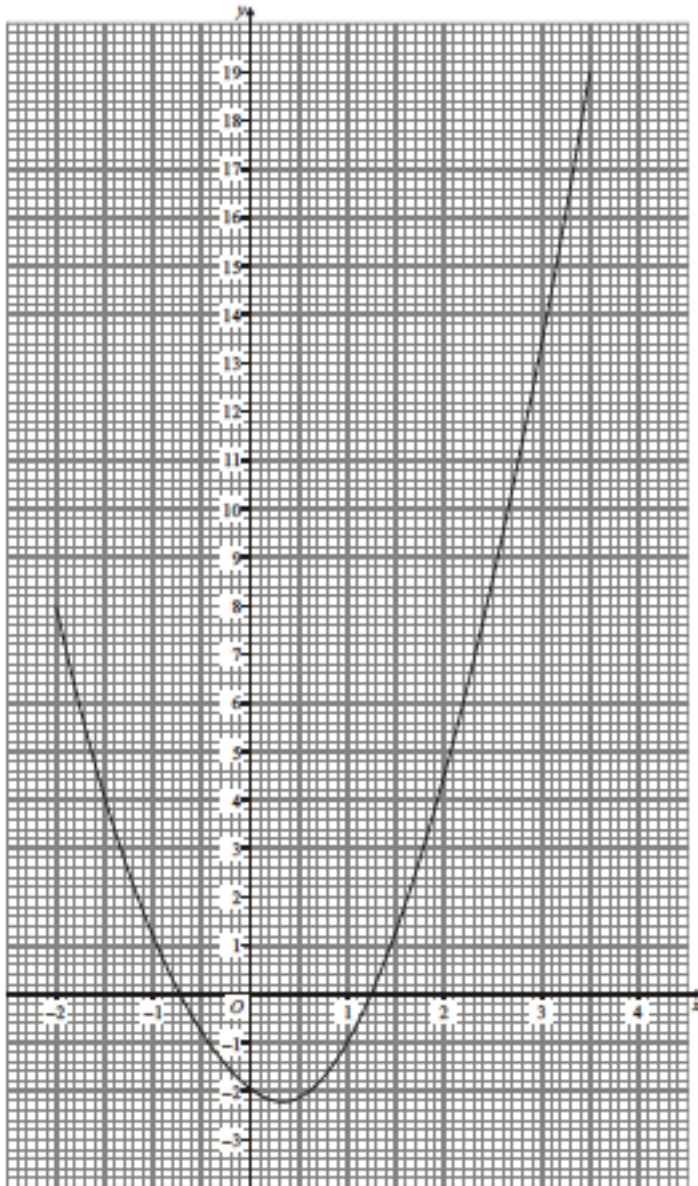


Revision F5 (Topics 20-24) [46]

1.

The graph of $y = 2x^2 - x - 2$ is drawn below.



(a) Write down the solutions of $2x^2 - x - 2 = 0$.

(2)

(b) By drawing an appropriate linear graph, write down the solutions of

$$2x^2 - 4x - 3 = 0$$

(3)

(Total 5 marks)

2. **Non-calculator**

Solve the inequality $x^2 > 3(x + 6)$

(Total 4 marks)

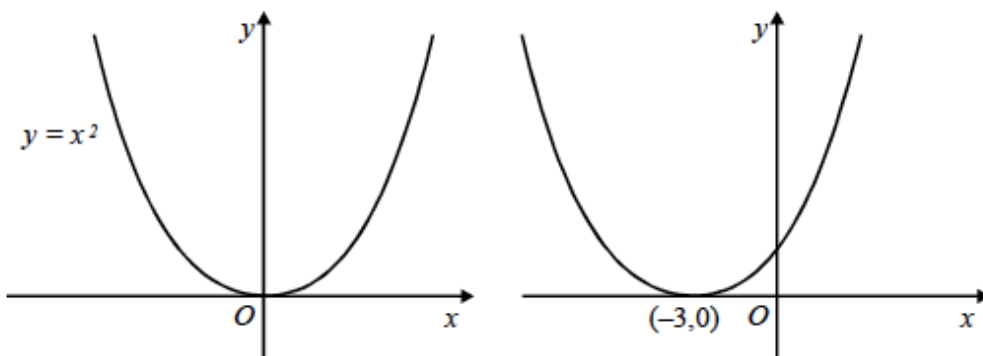
3.

Solve the equation $\frac{x+3}{3} + \frac{x-4}{2} = 1$

(Total 4 marks)

4.

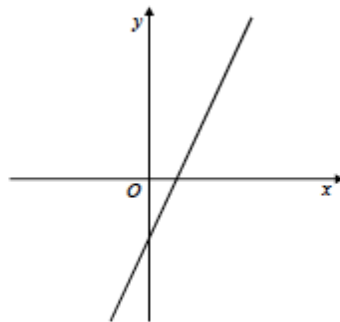
- (a) The graph $y = x^2$ is transformed as shown.



Write down the equation of the transformed graph.

(1)

- (b) The graph of $y = 3x - 2$ is sketched below.



On the same axes, sketch the graph of $y = 2 - 3x$

(2)

(Total 3 marks)

5.

- (a) Find the values of a and b such that

$$x^2 + 6x - 3 = (x + a)^2 + b$$

(2)

- (b) Hence, or otherwise, solve the equation

$$x^2 + 6x - 3 = 0$$

giving your answers in surd form.

(3)

(Total 5 marks)

6.

N.B. Draw a grid $-5 \leq x \leq 5$ and $-5 \leq y \leq 5$.

On the grid, show by shading, the region which satisfies all three of the inequalities.

$$x < 3$$

$$y > -2$$

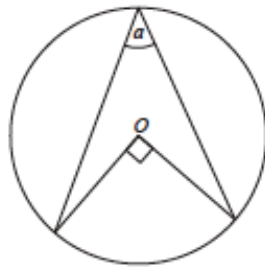
$$y < x$$

Label the region R.

(Total 5 marks)

7.

- (a) In the diagram, O is the centre of the circle.

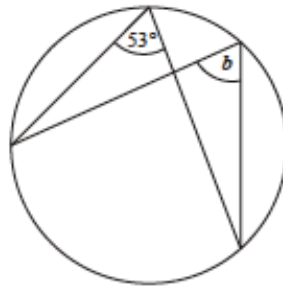


Not drawn accurately

Write down the value of a .

(1)

- (b)

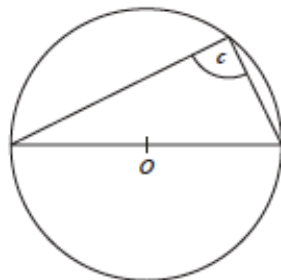


Not drawn accurately

Write down the value of b .

(1)

- (c) In the diagram, O is the centre of the circle.

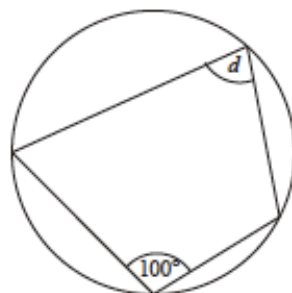


Not drawn accurately

Write down the value of c .

(1)

- (d)



Not drawn accurately

Write down the value of d .

(1)
(Total 4 marks)

8.

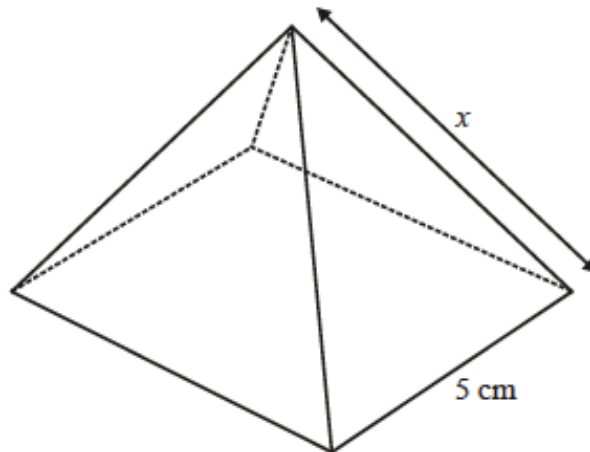
Solve these simultaneous equations algebraically.

$$\begin{aligned}y &= x^2 - 3x - 4 \\ 2x + y &= 2\end{aligned}$$

(Total 6 marks)

9.

A square-based pyramid has a base of edge 5 cm.
The vertex of the pyramid is directly over the midpoint of the base.
The volume of the pyramid is 100cm^3 .



Volume of a pyramid = $\frac{1}{3} \times \text{base area} \times \text{height}$.
--

Find the length of the slant edge of the pyramid (marked x in the diagram).

(Total 5 marks)

10.

Solve the equation

$$\frac{x}{x+1} - \frac{2}{x-1} = 1$$

(Total 5 marks)