



1. State which of the figures below could be the graph of

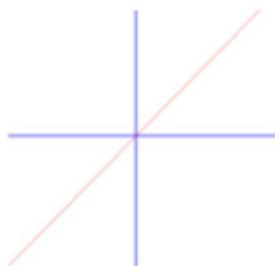


Figure 1

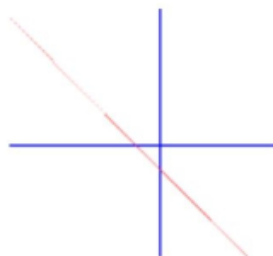


Figure 2

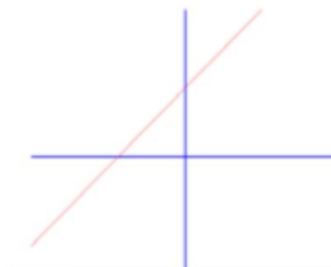


Figure 3

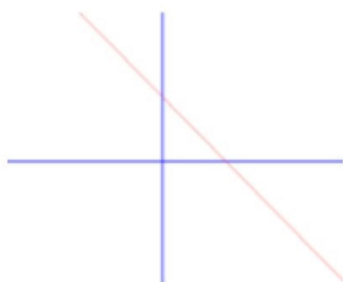


Figure 4

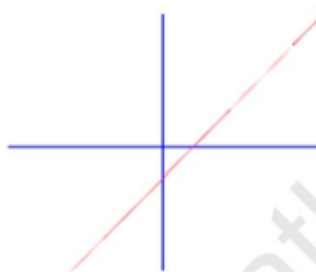


Figure 5

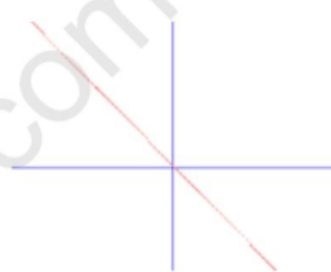


Figure 6

- (a) $y = -x - 1$ Ans _____ (b) $y = -x$ Ans _____ (c) $y = x + 3$ Ans _____
(d) $y = x$ Ans _____ (e) $y = -x + 3$ Ans _____ (f) $y = x - 1$ Ans _____

2. State which of the figures below could be the graph of

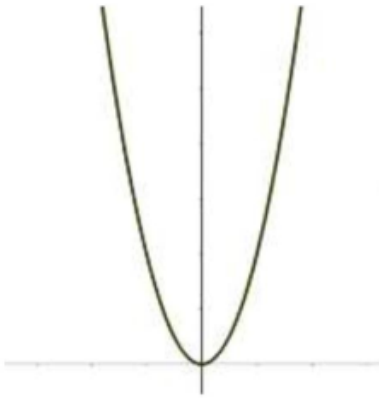


Figure 1

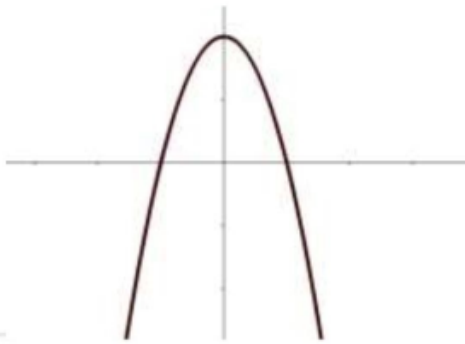


Figure 2

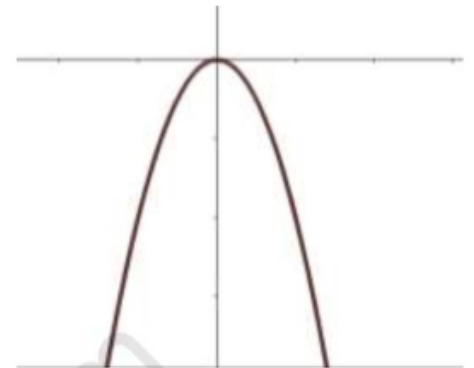


Figure 3

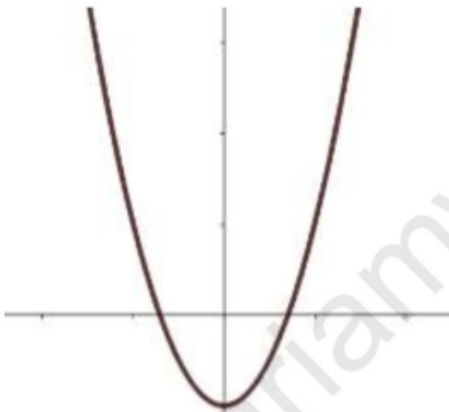


Figure 4

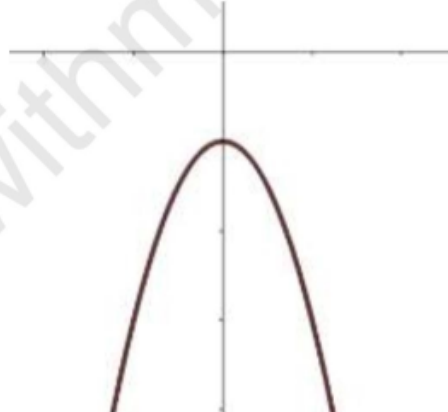


Figure 5

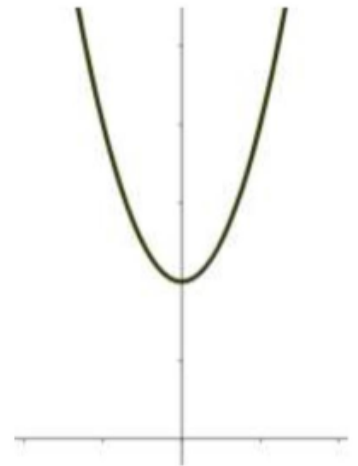
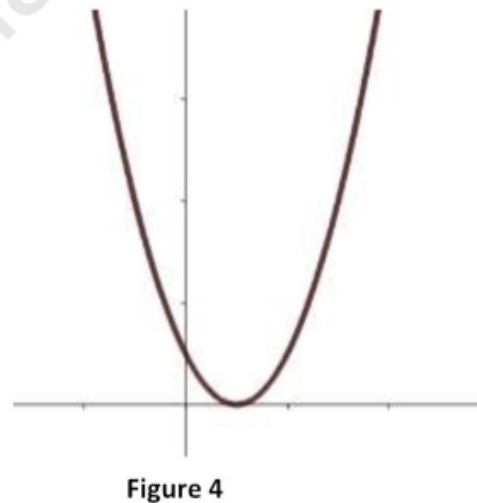
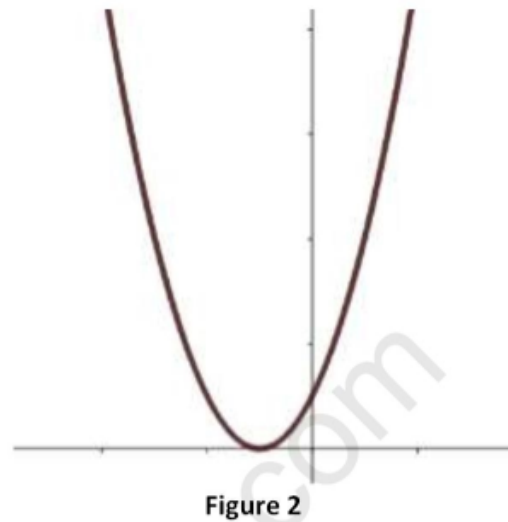
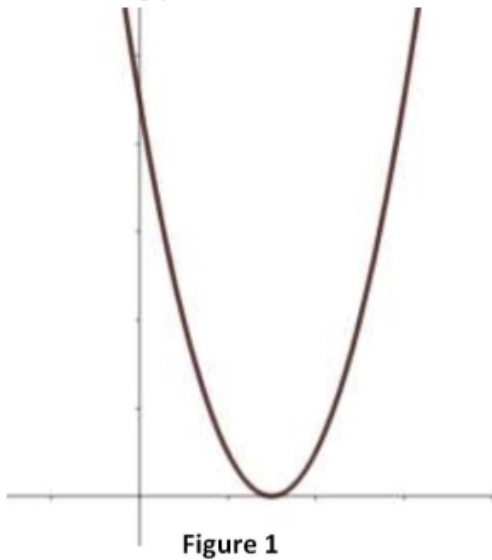


Figure 6

(a) $y = -x^2 + 4$ Ans _____ (b) $y = x^2$ Ans _____ (c) $y = -2 + x^2$ Ans _____

(d) $y = -x^2 - 2$ Ans _____ (e) $y = 4 + x^2$ Ans _____ (f) $y = -x^2$ Ans _____

3. State which of the figures below could be the graph of the given equations and also state the turning points of each



- (a) $y = (x + 1)^2$ Answer : Figure _____ Turning point _____
 (b) $y = (x - 3)^2$ Answer : Figure _____ Turning point _____
 (c) $y = (x - 1)^2$ Answer : Figure _____ Turning point _____
 (d) $y = (x + 3)^2$ Answer : Figure _____ Turning point _____

4. State which of the figures below could be the graph of the given equations

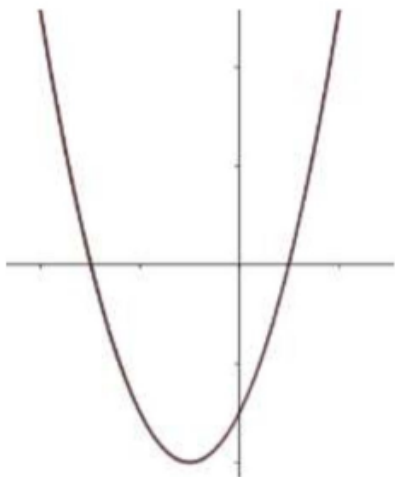


Figure 1

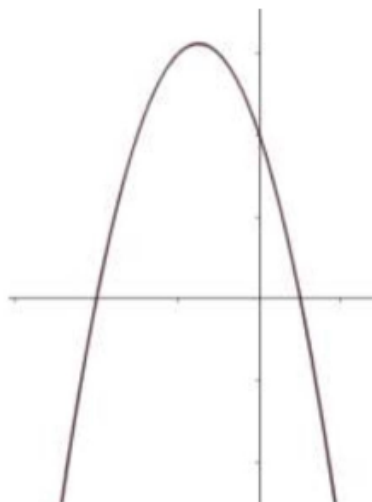


Figure 2

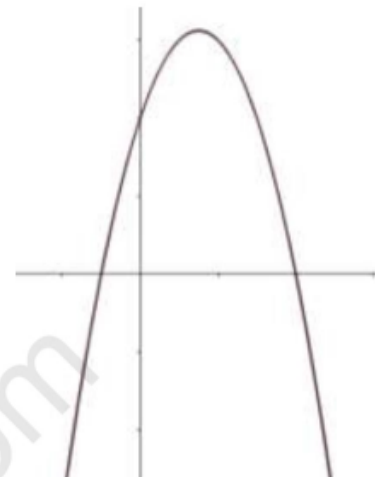


Figure 3

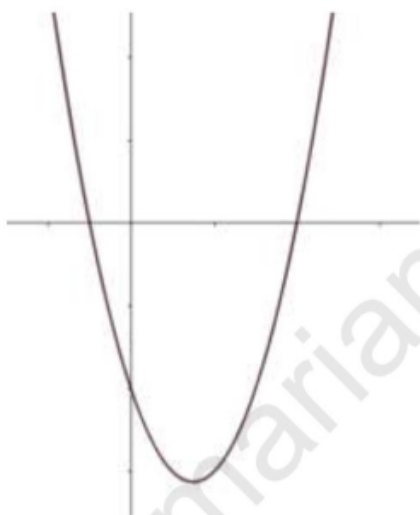


Figure 4

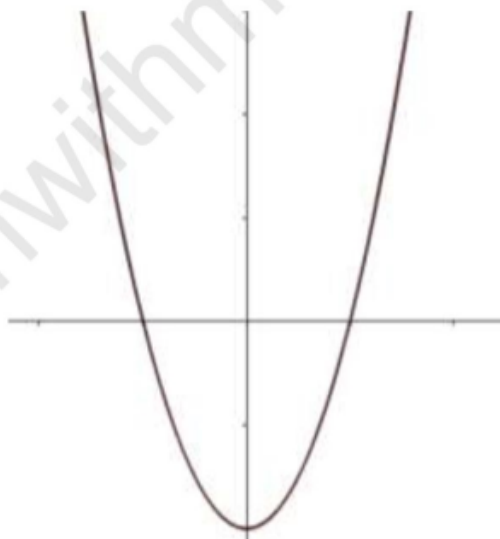


Figure 5

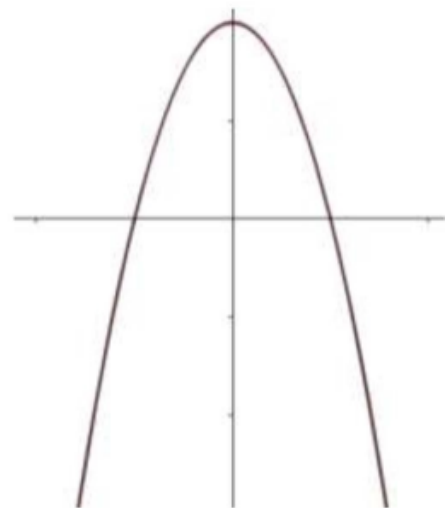


Figure 6

(a) $y = (x - 1)(x + 3)$ Ans _____

(b) $y = (-x + 4)(x + 1)$ Ans _____

(c) $y = (-x - 2)(x - 2)$ Ans _____

5. State which of the figures below could be the graph of the given equations and also state the turning points of each

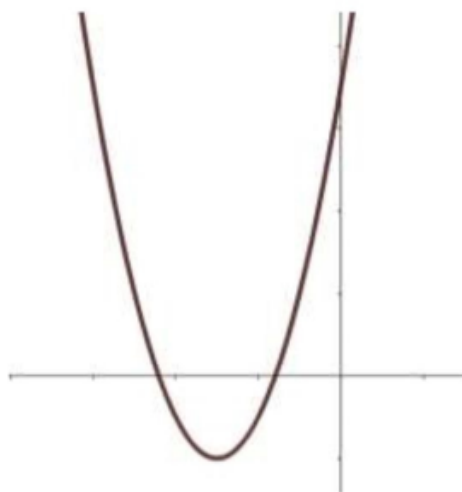


Figure 1



Figure 2

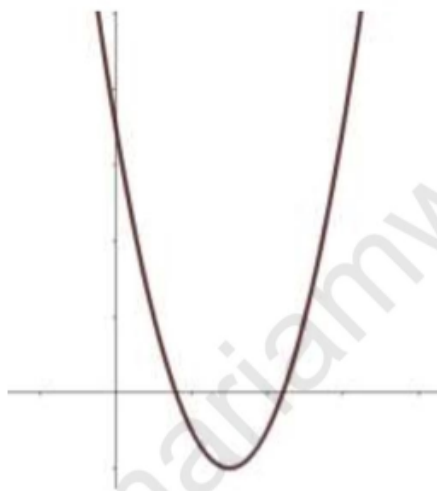


Figure 3



Figure 4

(a) $y = (x - 3)^2 - 2$ Answer : Figure _____ Turning point _____

(b) $y = (x + 3)^2 + 2$ Answer : Figure _____ Turning point _____

6. State which of the figures above could be the graph of



- (i) $y = -(x+5)^2+1$ (ii) $y = -(x-5)^2+1$ (iii) $y = (-x+5)^2+1$ (iv) $y = (-x-5)^2+1$

7. Which of the figures shown below could be the graph of

- (a) $y = x^2 + 2$, Answer (a) Figure [1]
 (b) $y = (x-2)(x+1)$, Answer (b) Figure [1]
 (c) $y = 2 - x - x^2$ Answer (c) Figure [1]

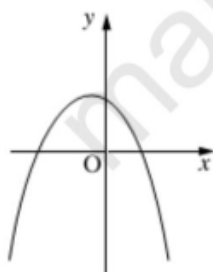


Figure 1

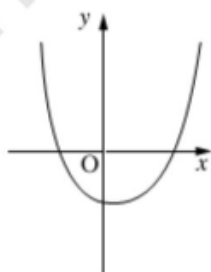


Figure 2

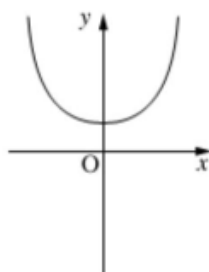


Figure 3

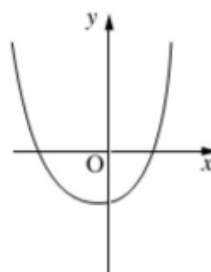
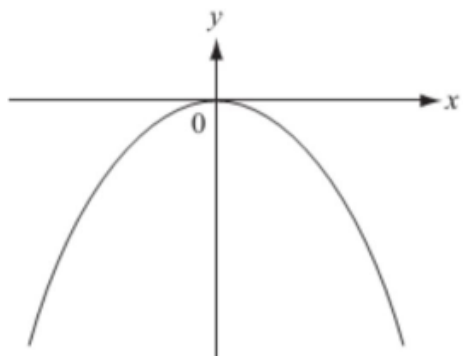


Figure 4

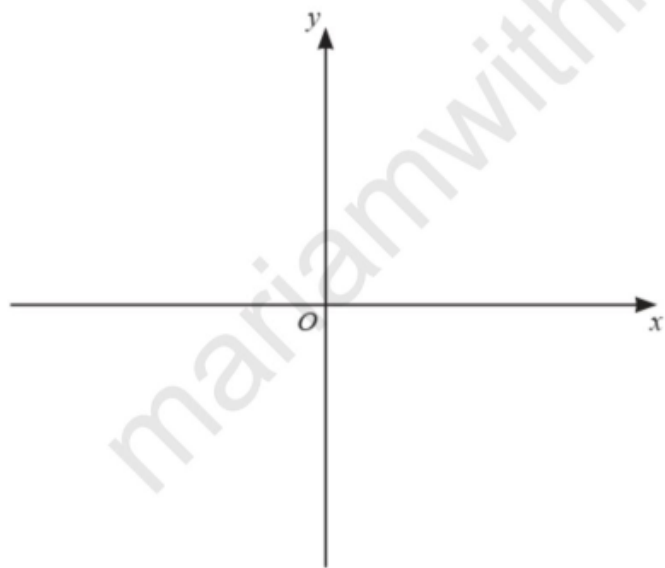
8. The sketch shows the graph of $y = ax^n$ where a and n are integers.
Write down a possible value for a and a possible value for n .



0580/23/M/J/11 Q5)

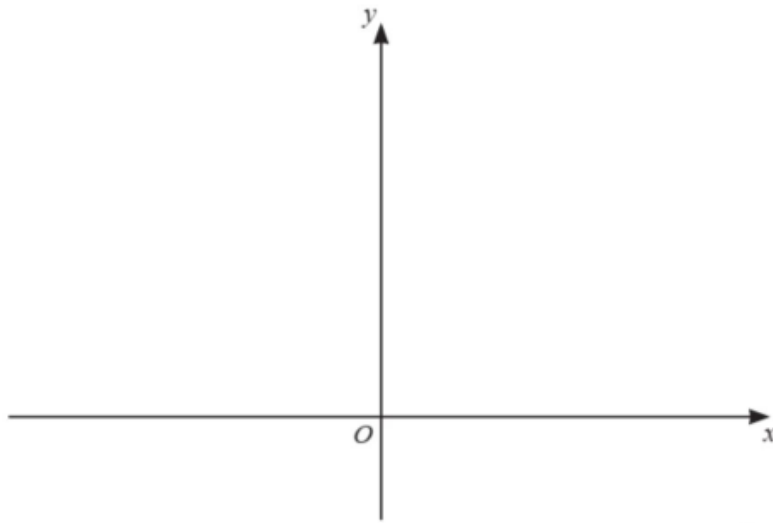
Answer $a = \dots\dots\dots$, $n = \dots\dots\dots$ [2]

9. (i) Write $x^2 + 10x + 14$ in the form of $(x + a)^2 + b$ [2]
(ii) On the axes, sketch the graph of $y = x^2 + 10x + 14$,
indicating the coordinates of the turning point. [3]



[0580/41/M/J/20 Q8(c)]

10. On the diagram,



(a) sketch the graph of $y = (x - 1)^2$ [2]

(b) sketch the graph of $y = \frac{1}{2}x + 1$ [2]

(ii) The graphs of $y = (x - 1)^2$ and $y = \frac{1}{2}x + 1$

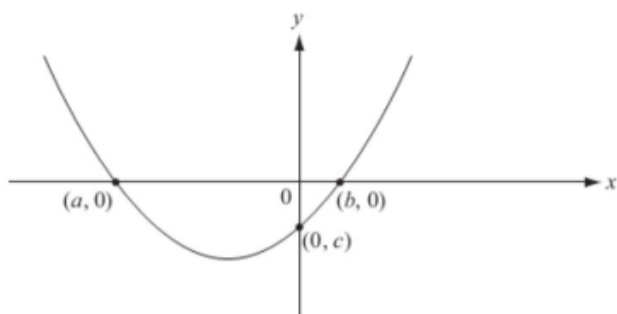
intersect at A and B. Find the coordinates of A and B
and hence length of AB , leaving answer in surd form[7]

0580/42/M/J/20 Q9(c)

11. (a)(i) Factorise $x^2 + 3x - 10$ [2]

(ii) The graph of $y = x^2 + 3x - 10$ is sketched below

Write down the values of a , b and c . [3]

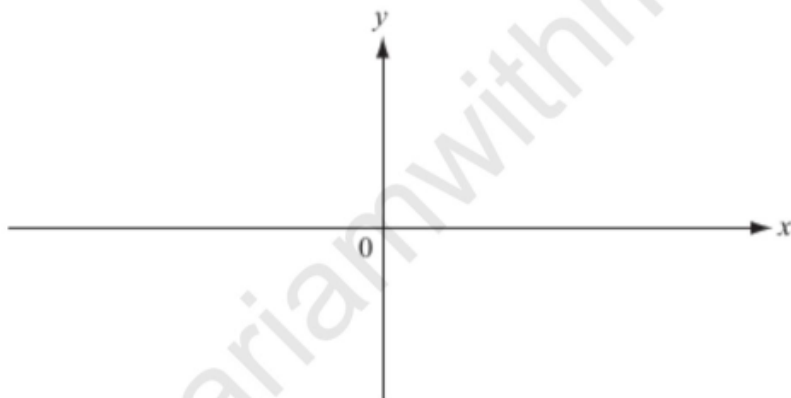


(iii) Write down the equation of the line of symmetry

of the graph of $y = x^2 + 3x - 10$ [1]

(b) Sketch the graph of $y = 18 + 7x - x^2$ on the axes below.

Indicate clearly the values where the graph crosses the x and y axes [4]



(c) (i) $x^2 + 12x - 7 = (x + p)^2 - q$

Find the value of p and the value of q . [3]

(ii) Write down the minimum value of y for the graph

of $y = x^2 + 12x - 7$. [1]

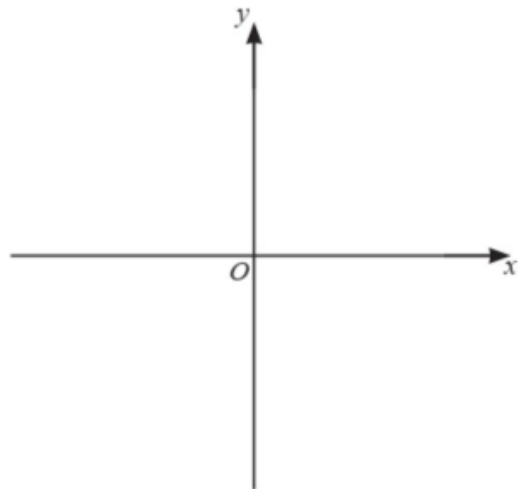
[0580/43/O/N/14 Q8]

12. $g(x) = 18 - 3x - x^2$

(i) Write $g(x)$ in the form $b - (a + x)^2$. [3]

(ii) Sketch the graph of $y = g(x)$.

On your sketch, show the coordinates of the turning point. [3]



0580/41/O/N/21 Q8)

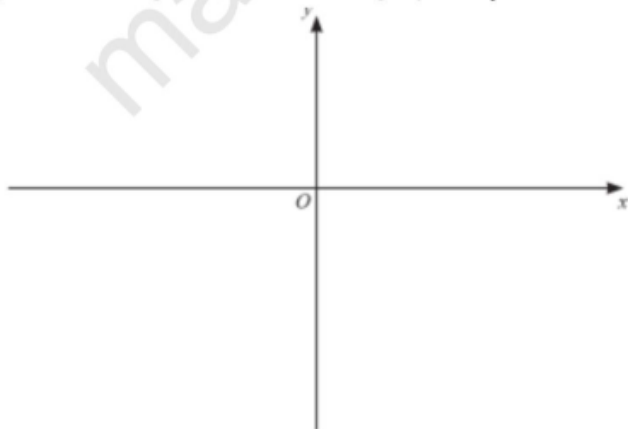
13. (i) Write $x^2 + 4x + 1$ in the form $(x + p)^2 + q$. [2]

(ii) Use your answer to part (b)(i) to solve the equation

$$x^2 + 4x + 1 = 0. [2]$$

(iii) Use your answer to part (b)(i) to write down the coordinates of the minimum point on the graph of $y = x^2 + 4x + 1$. [2]

(iv) On the diagram, sketch the graph of $y = x^2 + 4x + 1$. [2]



0580/43/M/J/21 Q7)

Answers

1) (a) Fig 2 (b) Fig 6 (c) Fig 3 (d) Fig 1 (e) Fig 4 (f) Fig 5	8) a any negative integer ,n any even (positive) integer
2) (a) Fig 2 (b) Fig 1 (c) Fig 4 (d) Fig 5 (e) Fig 6 (f) Fig 3	9) (i) $(x + 5)^2 - 11$ (ii) Sketch of U-shaped parabola with a minimum indicated at $(-5, -11)$ with no part of graph in 4 th quadrant
3) (a) Fig 2 , $(-1, 0)$ (b) Fig 1 , $(3, 0)$ (c) Fig 4 , $(1, 0)$ (d) Fig 3 , $(-3, 0)$	10) (i)(a) Sketch of U-shaped parabola with x and y intercept 1 (i)(b) straight line with x intercept -2 and y intercept 1 (ii) $(\frac{5}{2}, \frac{9}{4})$ and $(0,1)$ and length $\frac{5\sqrt{5}}{4}$
4) (a) Fig1 (b) Fig3 (c) Fig 6	11) (a)(i) $(x+5)(x-2)$ (ii) -5 , 2 , -10 (iii) $x = -1.5$ (from $(a+b)/2$) (b) Inverted parabola (inverted u shape) x -axis intercepts at -2 and 9 , y -axis intercept at 18 (c)(i) $p = 6$ $q = 43$ (ii) -43
5) (a) Fig3 , $(3, -2)$ (b) Fig 2 $(-3, 2)$	12) (i) $20.25 - (1.5 + x)^2$ (ii) inverted parabola with turning point $(-1.5, 20.25)$ and y intercept 18
6) (i) fig(c) (ii) fig(b) (iii) fig(d) (iv) fig(a)	13) (i) $(x + 2)^2 - 3$ (ii) $-2 \pm \sqrt{3}$ (iii) $(-2, -3)$ (iv) parabola with correct intercepts and min point
7) (a) 3 (b) 2 (c) 1	