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

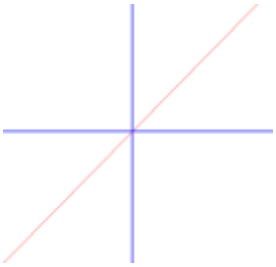


Figure 1

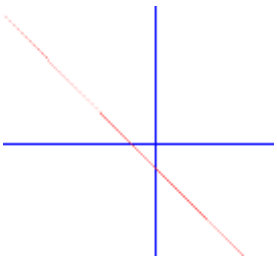


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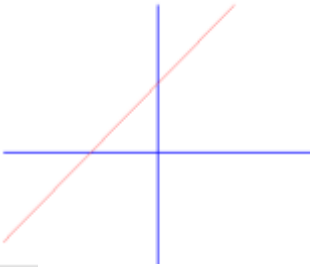


Figure 3

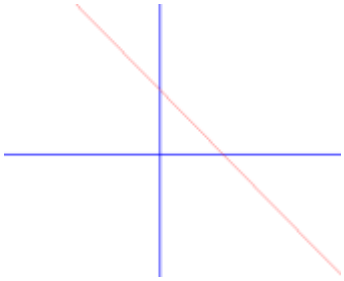


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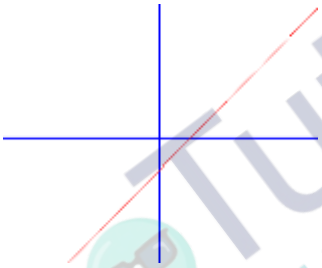


Figure 5

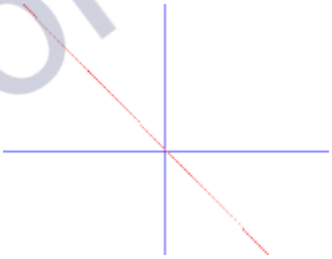


Figure 6

(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_____

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

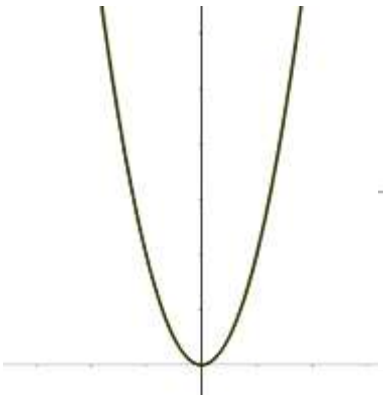


Figure 1

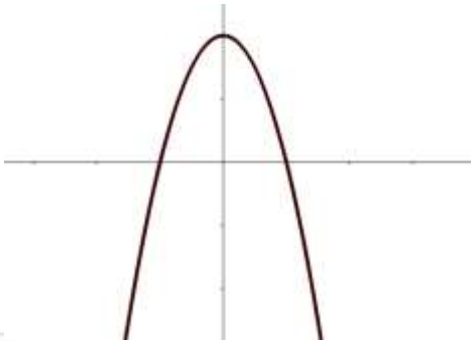


Figure 2

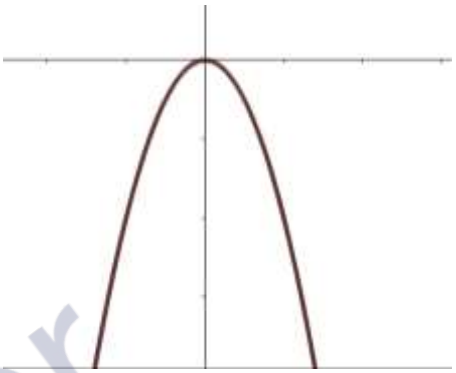


Figure 3

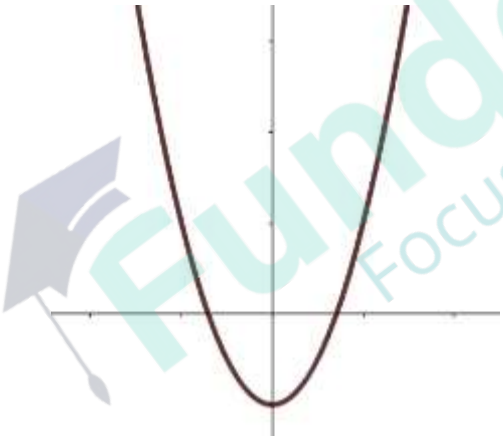


Figure 4

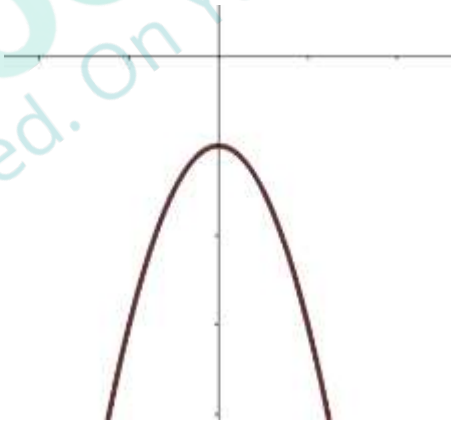


Figure 5

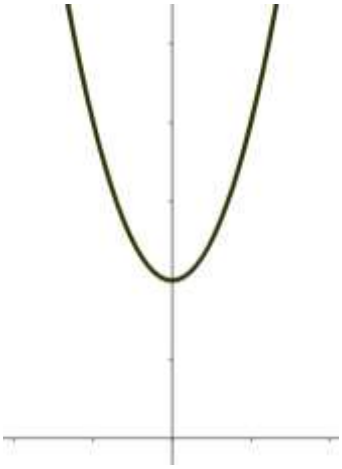


Figure 6

(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 _____

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

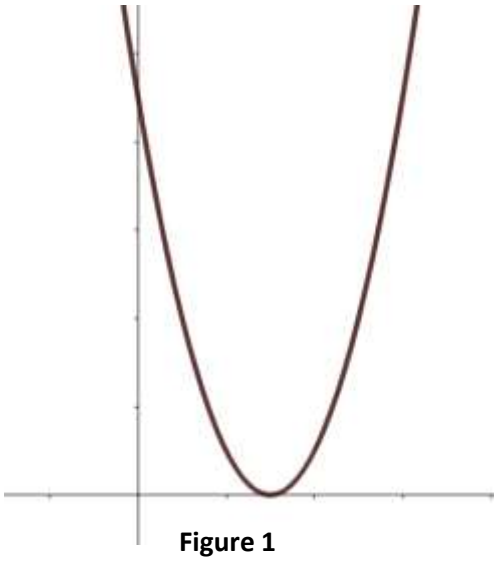


Figure 1

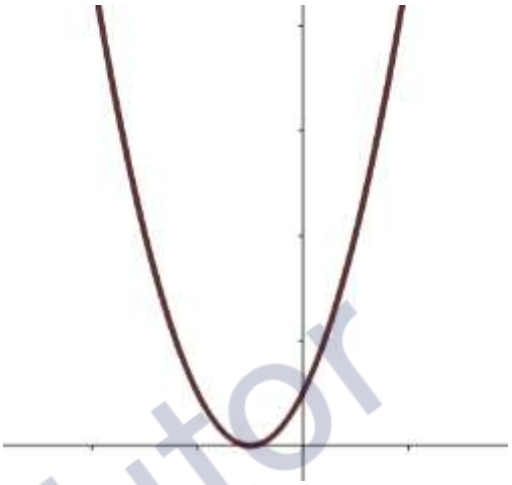


Figure 2



Figure 3

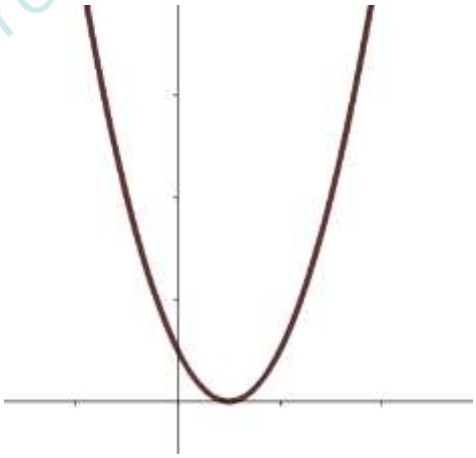


Figure 4

(a) $y = (x + 1)^2$ 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 _____

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

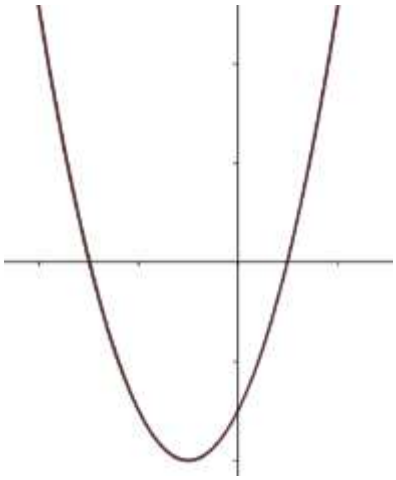


Figure 1

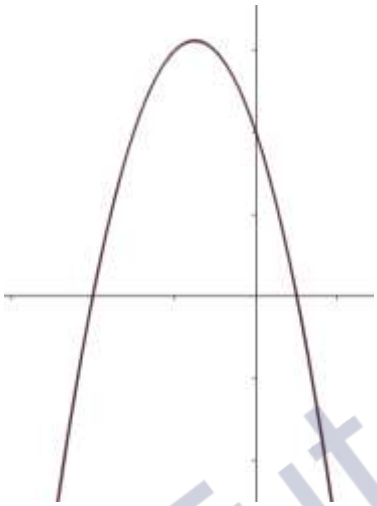


Figure 2

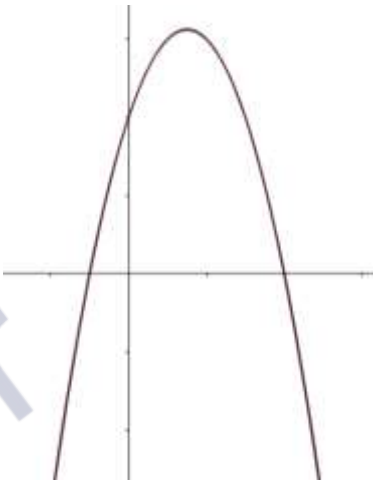


Figure 3

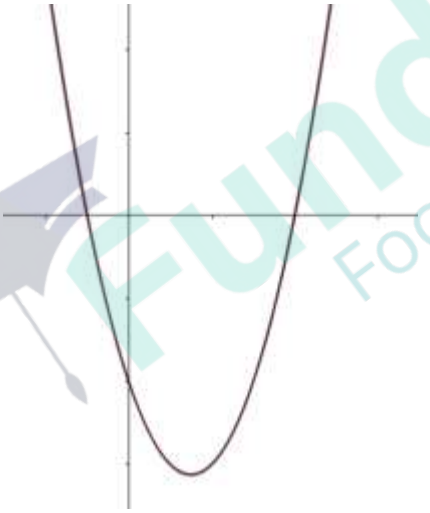


Figure 4

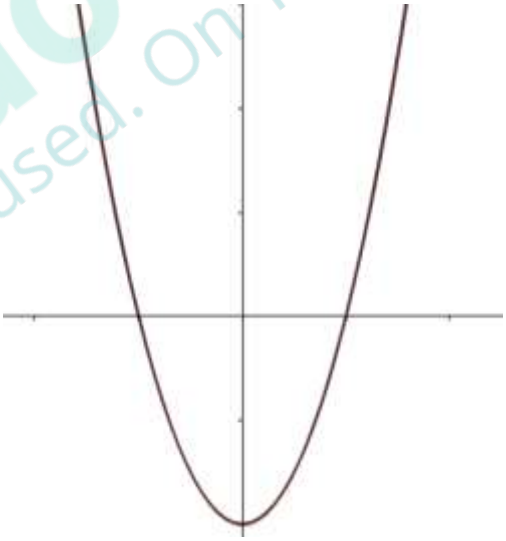


Figure 5

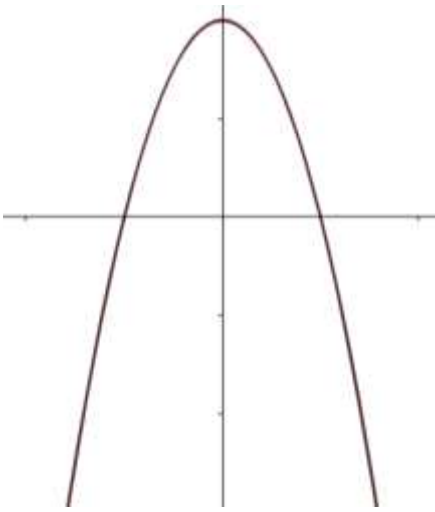


Figure 6

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

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

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

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

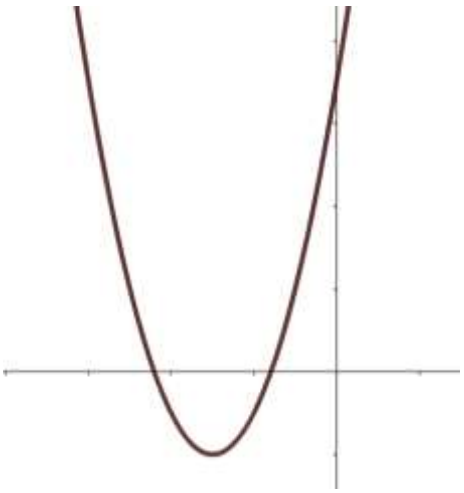


Figure 1



Figure 2

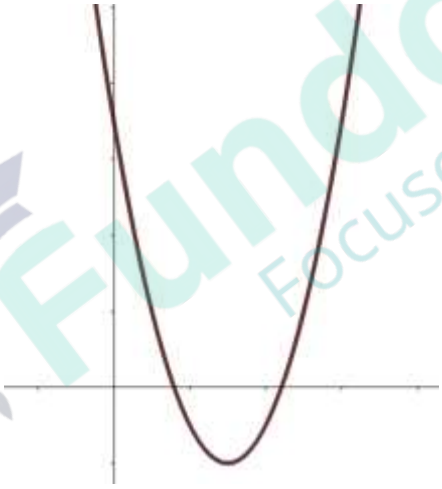


Figure 3

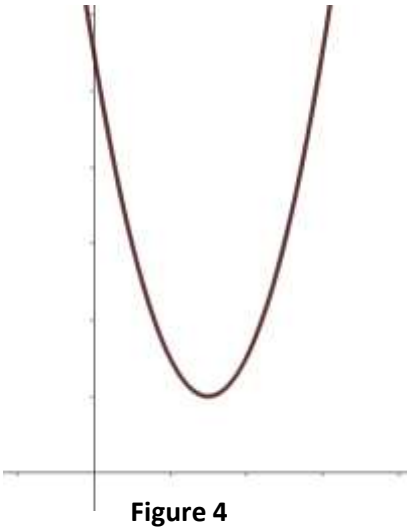


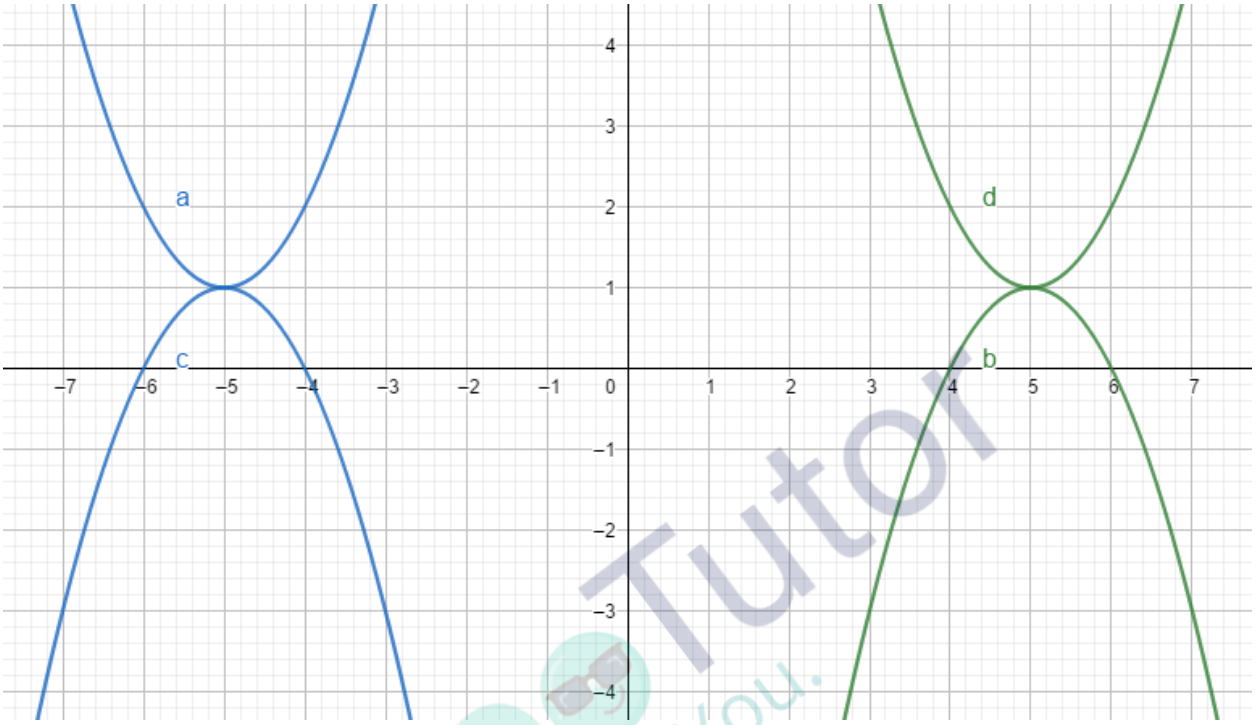
Figure 4

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

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

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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]

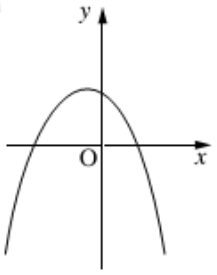


Figure 1

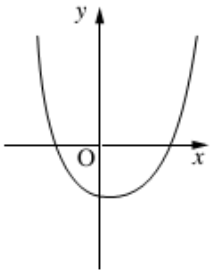


Figure 2

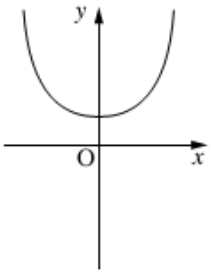


Figure 3

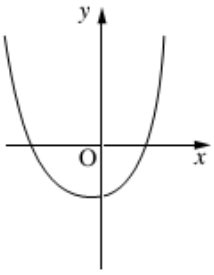
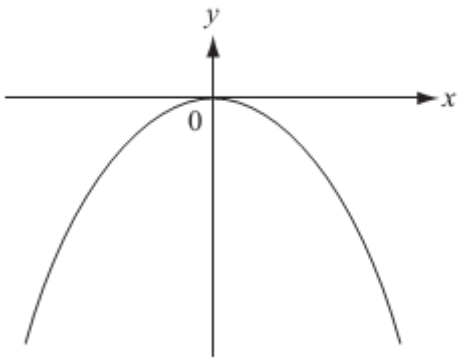


Figure 4

[4024/01/M/J/09 Q13]

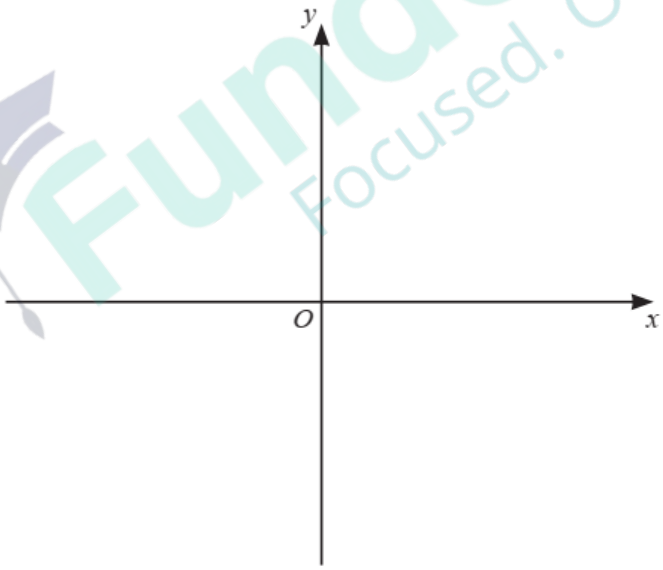
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8. The sketch shows the graph of y= ax^n where a and n are integers.
Write down a possible value for a and a possible value for n.



0580/23/M/J/11 Q5) Answer a = ... , n = ... [2]

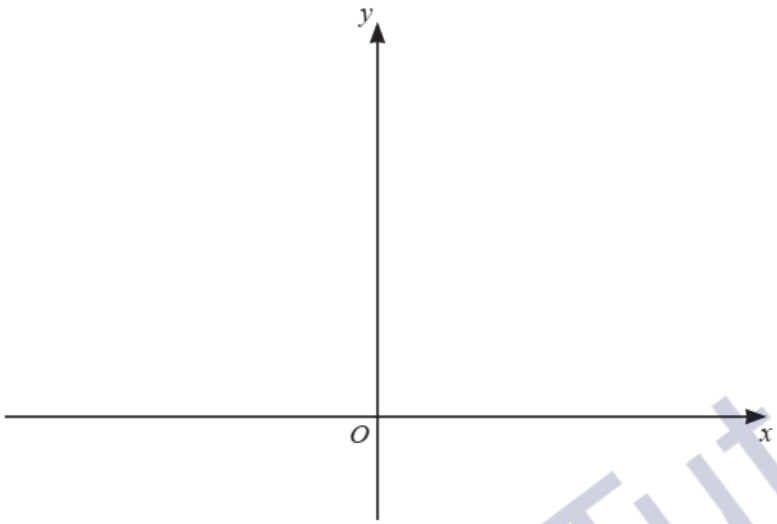
9. (i) Write $x^2 + 10x + 14$ in the form of $(x + a)^2 + b$ [2]
(ii) On the axes, sketch the graph of $y = x^2 + 10x + 14$,
indicating the coordinates of the turning point. [3]



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

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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)

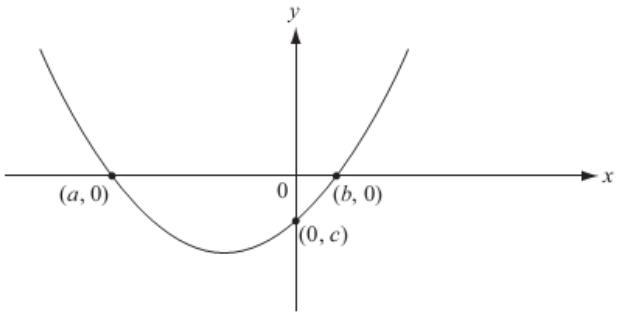
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11. (a)(i) Factorise $x^2 + 3x - 10$ [2]

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

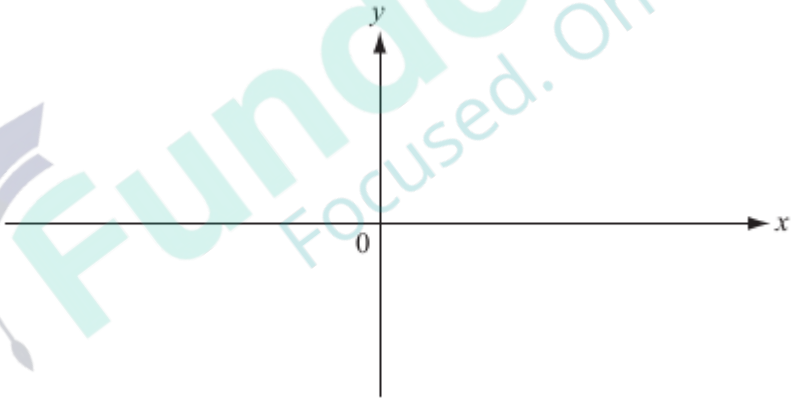
Write down the values of a, b and c. [3]



(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]

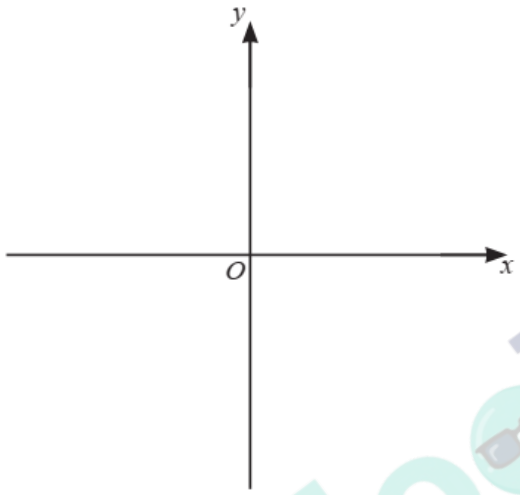
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12. $g(x) = 18 - 3x - x^2$

(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]



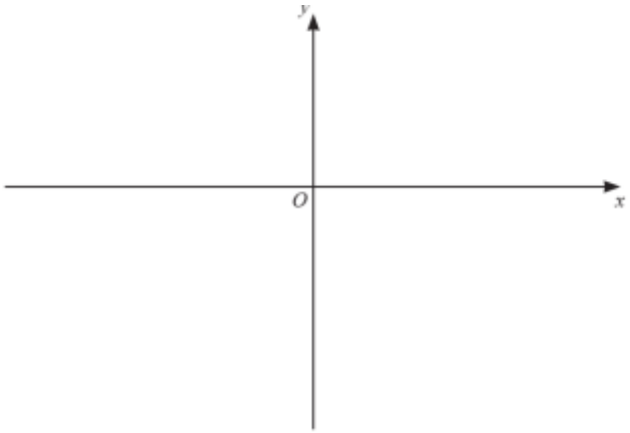
0580/41/O/N/21 Q8)

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)

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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 4th 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	

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