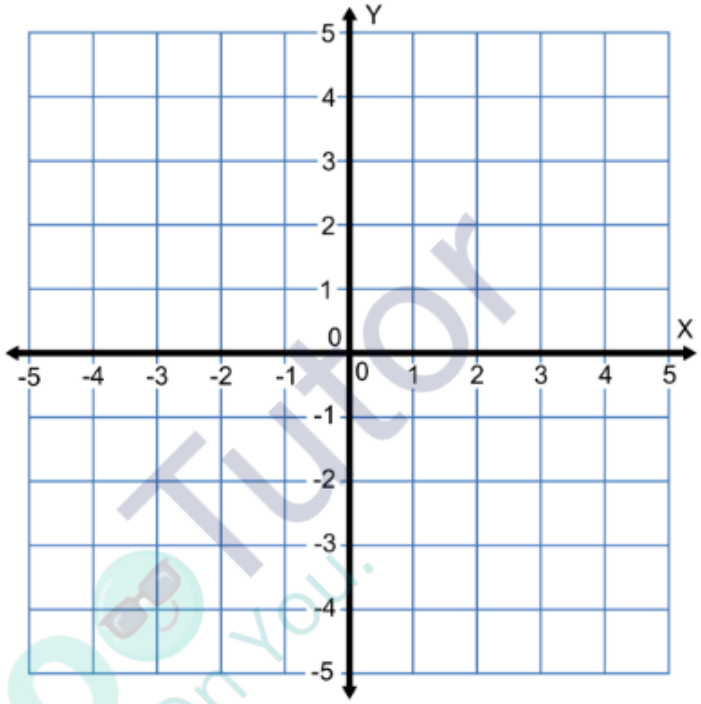
Sketching Graphs of Quadratic Functions Grade 8

(Book Questions)

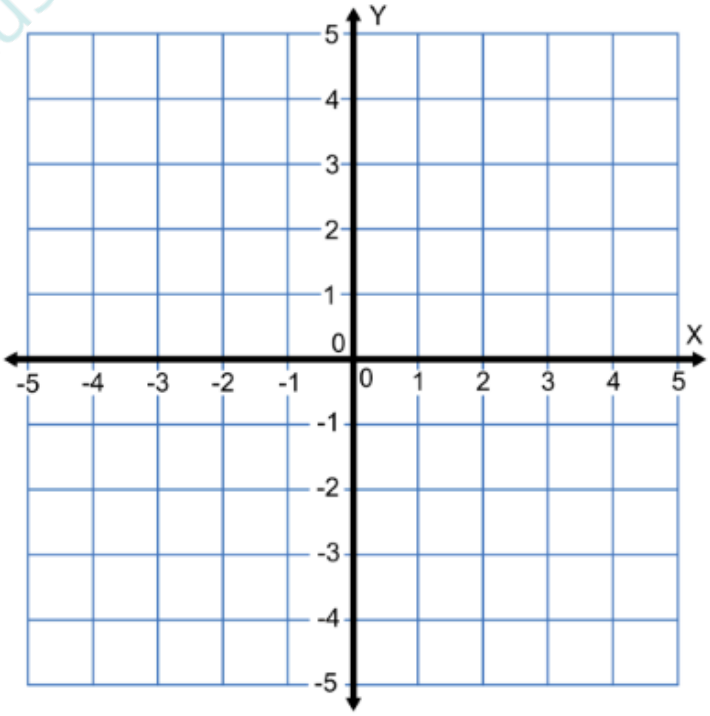
1. Plot the points on the grid provided

   A(3,4)
   B(2, -5)
   C(-4, 3)
   D(-2, -4)
   E(0,3)
   F(0,-4)
   G(3,0)
   H(-5,0)



2. Plot the following

   (a) $x = 2$ (b) $x = 5$ (c) $x = -3$ (d) $x = 0$
   (e) $y = -2$ (f) $y = -5$ (g) $y = 3$ (h) $y = 0$



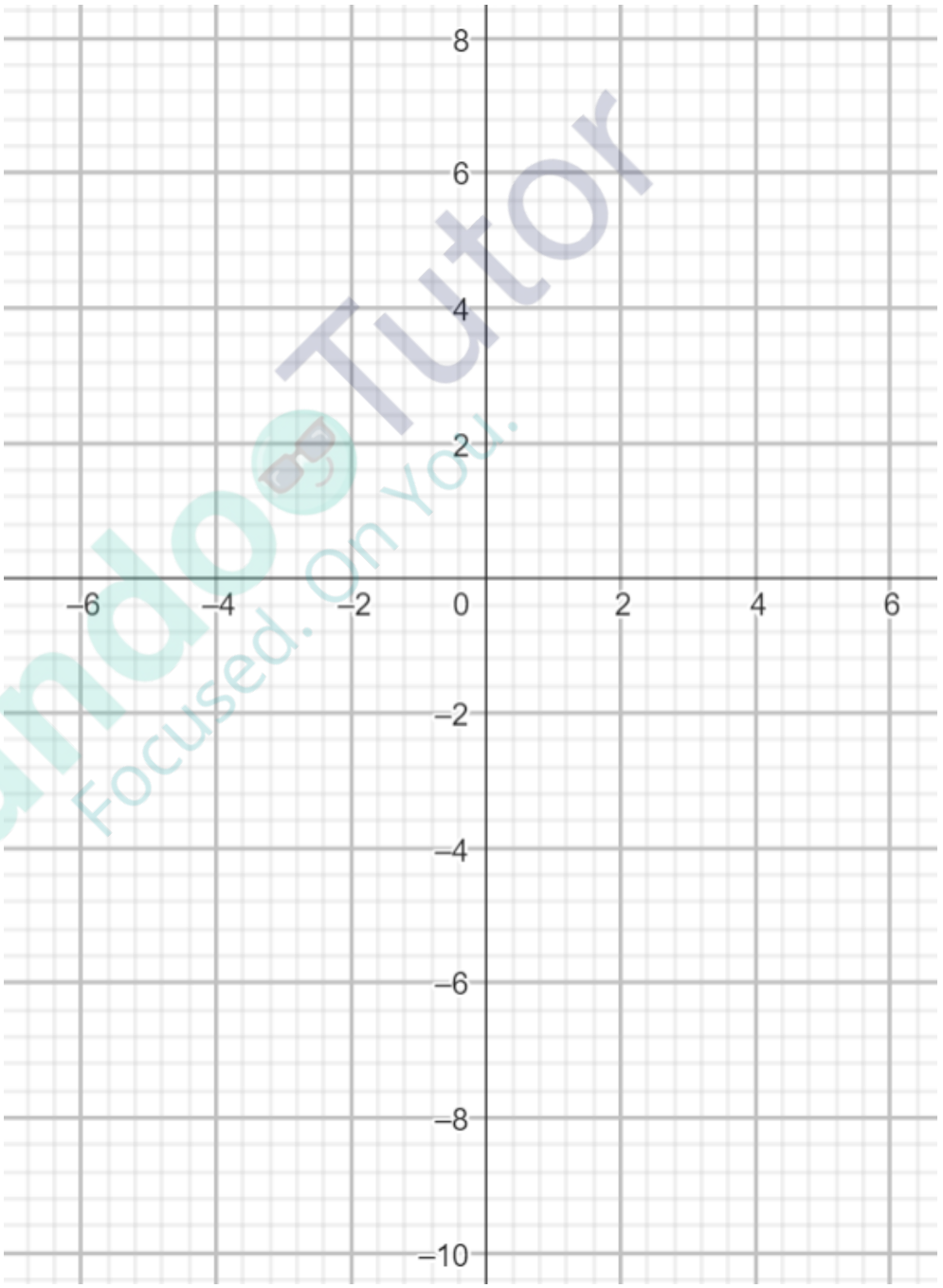
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3. The variables x and y are connected by the equation $y = x^2 + 2x - 8$. Some values of x and the corresponding values of y are given in the table.

x	-5	-4	-3	-2	-1	0	1	2	3
y	7	$\boldsymbol{a}$	-5	-8	-9	-8	$\boldsymbol{b}$	0	7

(a) Find the value of a and of b.
(b) Draw the graph of
$y = x^2 + 2x - 8$
(c) Use your graph in (b) to find
(i) the values of x when $y = 3$,
(ii) the minimum value of y.
(d) State the equation of the line of symmetry of the graph.



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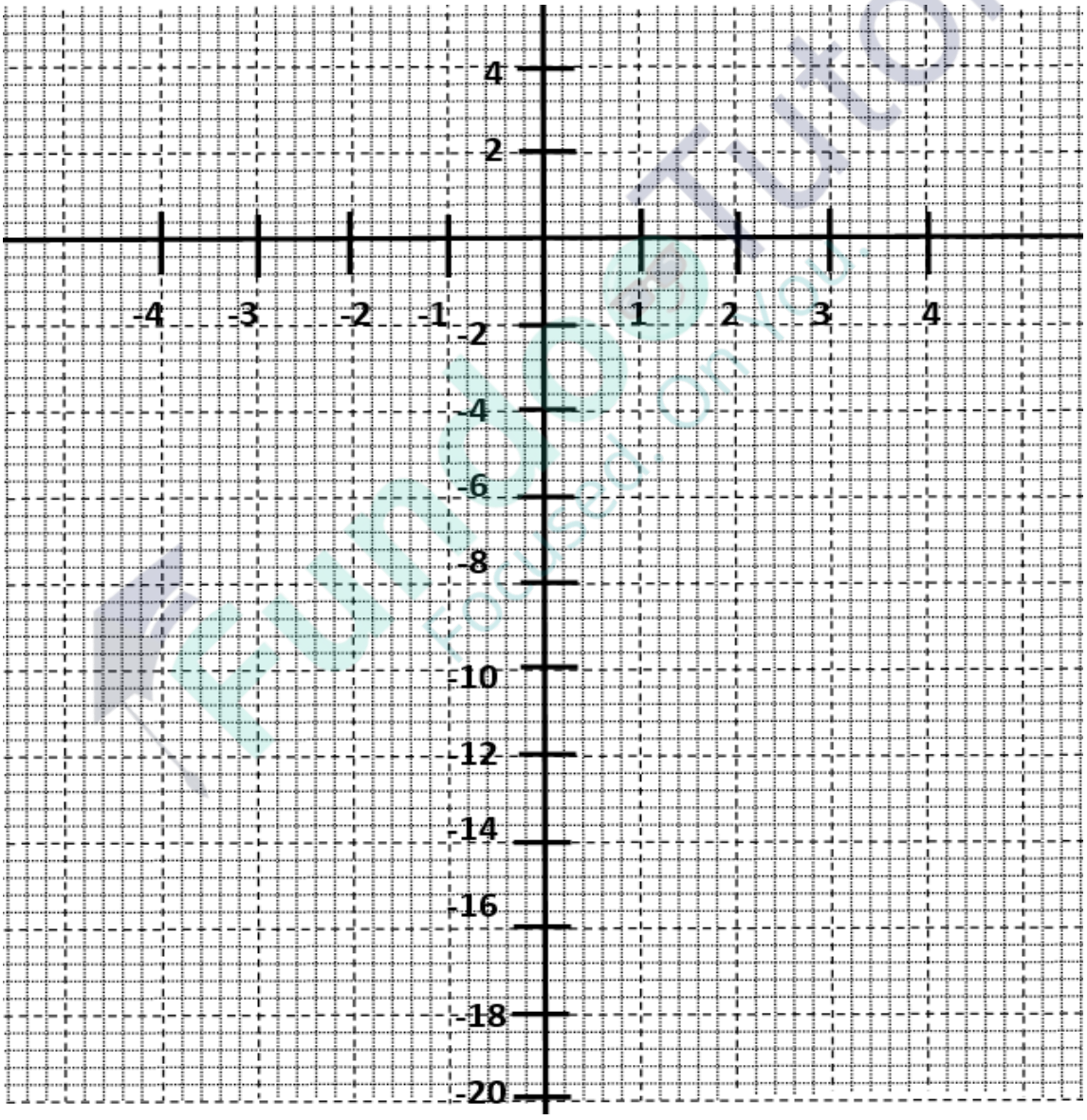
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4. The variables x and y are connected by the equation $y = 2 - 3x - 2x^2$.
Some values of x and the corresponding values of y are given in the table.

x	-4	-3	-2	-1	0	1	2
y	-18	p	0	3	2	q	-12

(a) Find the value of p and of q.
(b) Draw the graph of $y = 2 - 3x - 2x^2$



(c) Use your graph in (b) to find
(i) the value of y when $x = -3.5$,
(ii) the maximum value of y and the value of x at which this occurs.

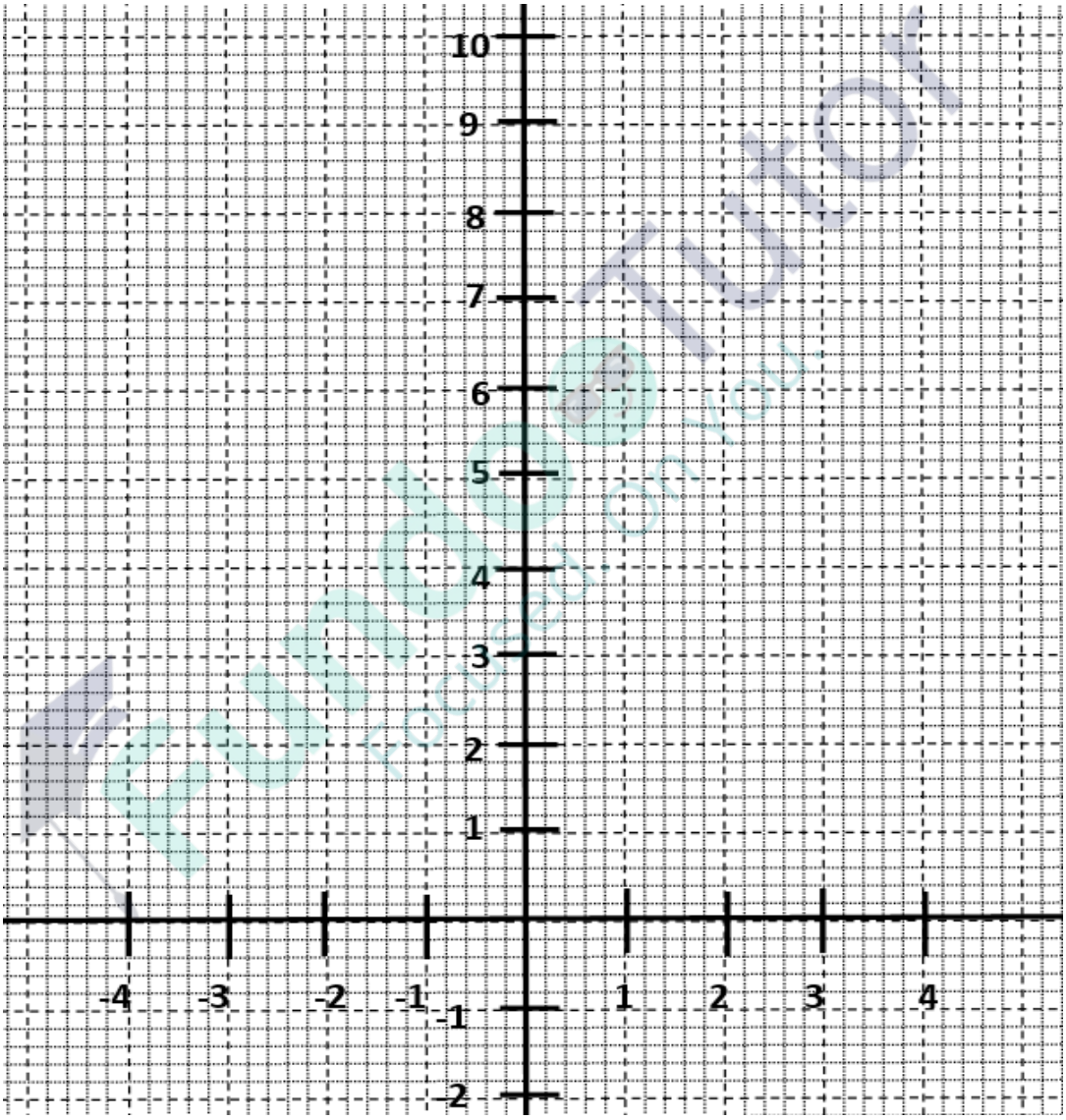
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5. The variables x and y are connected by the equation $y = 10 - x - x^2$. Some values of x and the corresponding values of y are given in the table.

x	-4	-3	-2	-1	0	1	2	3
y	-2	4	8	10	10	8	4	-2

(a) Draw the graph of $y = 10 - x - x^2$



(b) Use your graph in (a) to find

(i) the value of y when $x = -1.5$.

(ii) the maximum value of y and the value of x at which this occurs.

(c) By drawing an appropriate line in your graph in (a), solve the equation $10 - x - x^2 = 1.6$.

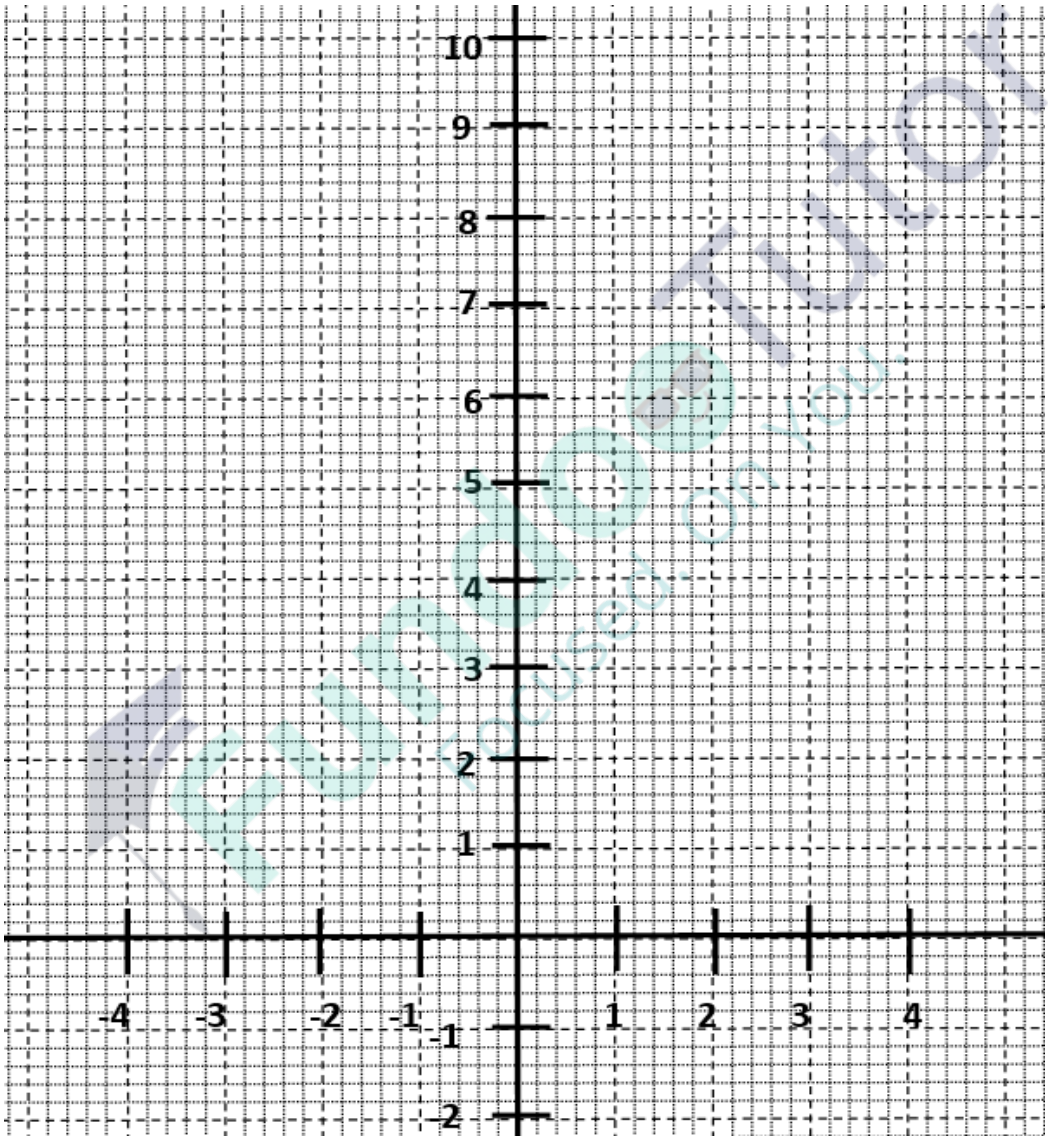
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6. The variables x and y are connected by the equation $y = x^2 - 2x$. Some values of x and the corresponding values of y are given in the table.

x	-2	-1	0	1	2	3	4
y	8	3	0	-1	0	3	8

(a) Draw the graph of $y = x^2 - 2x$



(b) Use your graph in (a) to find
(i) the values of x when $y = 1$,
(ii) the minimum value of y.
(c) State the equation of the line of symmetry of the graph.
(d) By drawing an appropriate line in your graph in (a), solve the equation $x^2 - 2x = x$.

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7. The variables x and y are connected by the equation $y = 3 + 2x - x^2$.

Some values of x and the corresponding values of y are given in the table.

x	-3	-2	-1	0	1	2	3	4	5
y	-12	-5	0	3	4	3	0	**p**	-12

(a) Find the value of p Answer p = _____

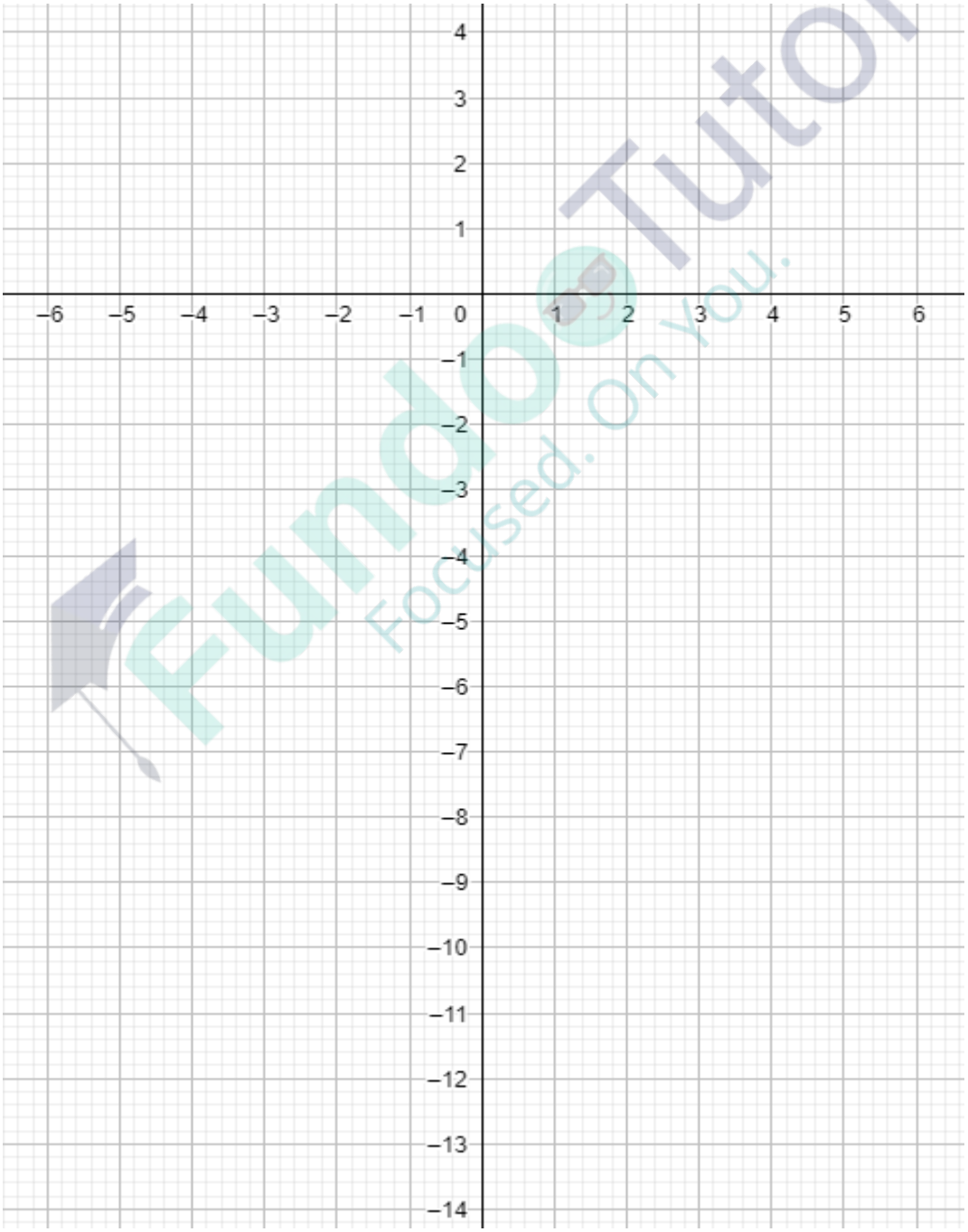
(b) On a the graph below draw the graph of $y = 3 + 2x - x^2$

(c) Use the **graph** to find,

(i) the value of y when $x = -1.9$ Answer y = _____

(ii) the values of x when $y = -10$ Answer x = _____ and _____

(d) State the equation of line of symmetry of the graph Answer _____



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8. (a) Complete the table for $y = \frac{x^2}{2} - 3x + 2$

x	-1	0	1	2	3	4	5	6	7
y	5.5	2	-0.5	q	-2.5	-2	-0.5	2	5.5

Answer q = _____

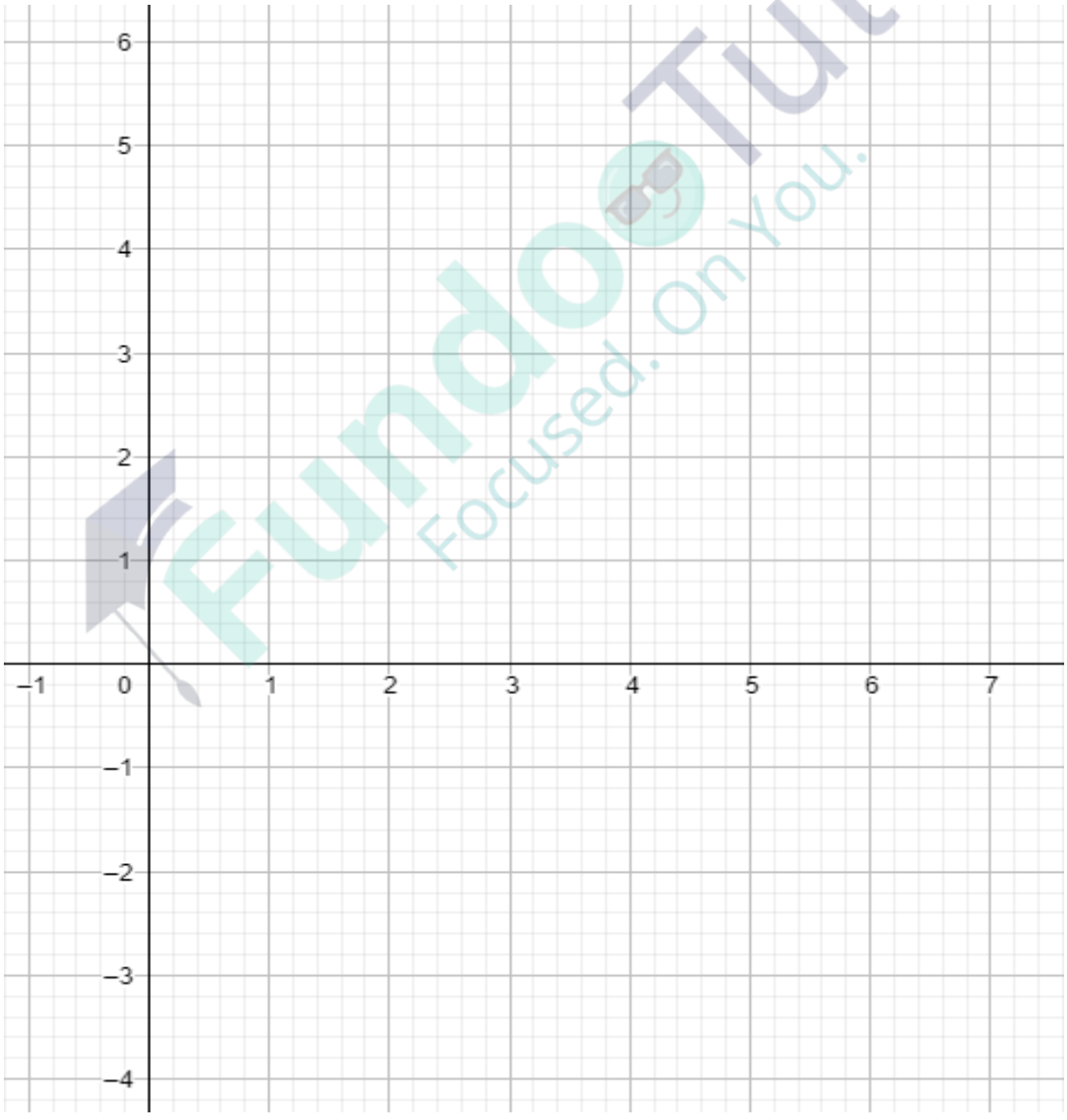
(b) On the graph below, draw the graph of $y = \frac{x^2}{2} - 3x + 2$

(c) State the minimum value of y and the value of x at which it occurs.

Answer $y =$ ____ , $x =$ ____

(d) By drawing a straight line on your graph solve the equation $\frac{x^2}{2} - 3x + 2 = 4$

Answer x = _____ and _____



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Answers

3	(a) a=0 , b=-5 (c) (i)2.45 or -4-45 (ii)-9 (d)$x = -1$
4	(a) p =-7 and q=-3 c(i) -12 (ii) 3.1 , -0.75
5	(b) (i)9.3 (ii)10.3 , -0.5 (c) -3.45 or 2.45
6	b(i)-0.4 or 2.4 (ii) -1 (c) $x = 1$ (d) 0 or 3
7	(c)(i) -4.4 (ii)x = -2.74 & x = 4.74 (d) x = 1
8	(a) -2 (c)-2.5 and 3 (d)-0.6 and 6.6

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