Ex.1. Solve the given quadratic equation by graphing : $y = x^2 + 2x + 1$

Sol. I will make make (use) a table of values to graph the given eq.

Table

X	Y
0	1
1	4
-1	0
-2	1
-3	4

Calcutions

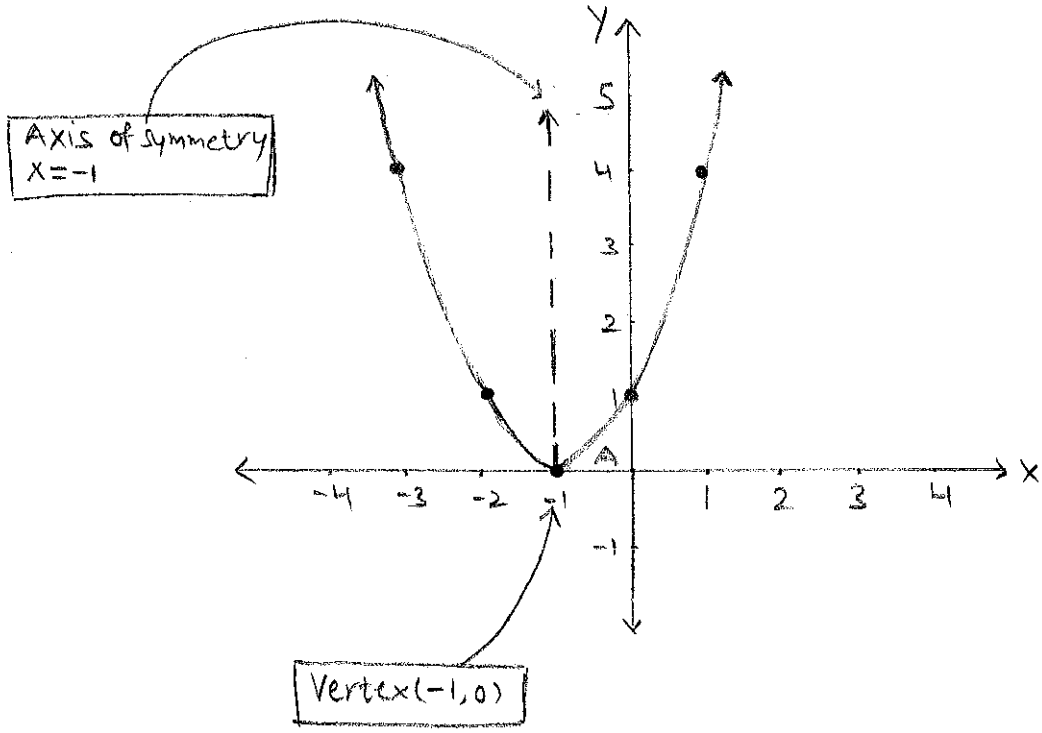
If $x = 0$, $y = (0)^2 + 2(0) + 1 = 0 + 0 + 1 = 1$

If $x = 1$, $y = (1)^2 + 2(1) + 1 = 1 + 2 + 1 = 4$

If $x = -1$, $y = (-1)^2 + 2(-1) + 1 = 1 - 2 + 1 = 0$

If $x = -2$, $y = (-2)^2 + 2(-2) + 1 = 4 - 4 + 1 = 1$

If $x = -3$, $y = (-3)^2 + 2(-3) + 1 = 9 - 6 + 1 = 4$



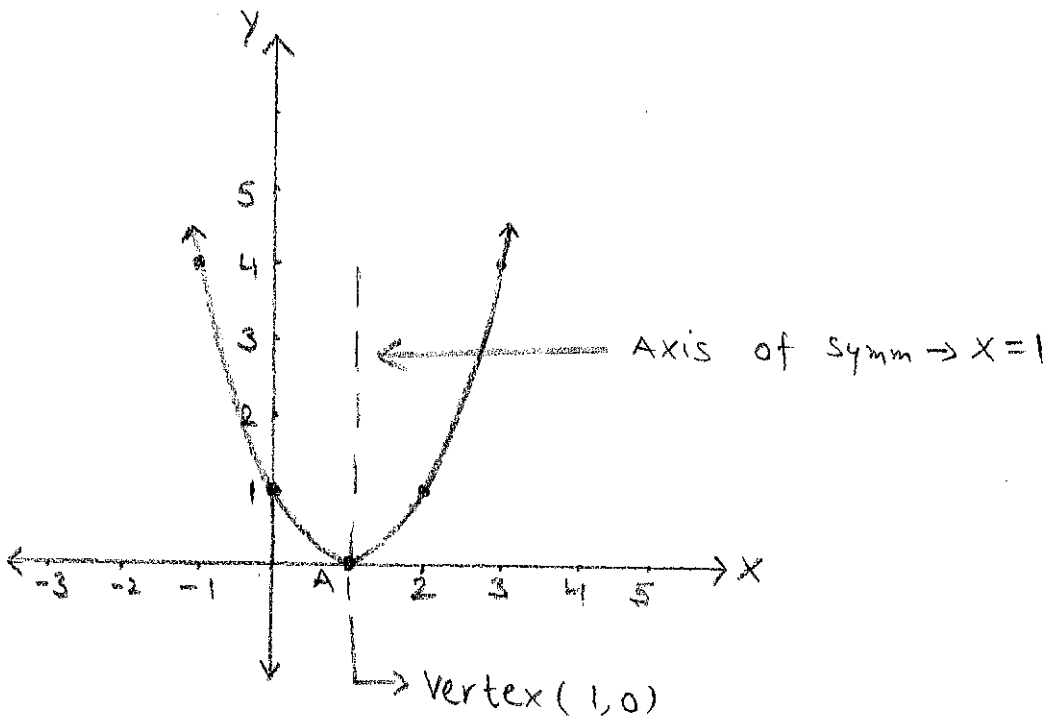
Solution → $A = -1$.

Q.1. $y = x^2 - 2x + 1$

Table

X	Y
0	1
1	0
-1	4
2	1
3	4

Calculations
If $x=0$, $y = (0)^2 - 2(0) + 1 = 0 - 0 + 1 = 1$
If $x=1$, $y = (1)^2 - 2(1) + 1 = 1 - 2 + 1 = 0$
If $x=-1$, $y = (-1)^2 - 2(-1) + 1 = 1 + 2 + 1 = 4$
If $x=2$, $y = (2)^2 - 2(2) + 1 = 4 - 4 + 1 = 1$
If $x=3$, $y = (3)^2 - 2(3) + 1 = 9 - 6 + 1 = 4$



<u>Solution</u> → A = 1

Q. 2 $y = x^2 - 2x - 3$

Table

X	Y
0	-3
1	-4
-1	0
2	-3
3	0

Calculations

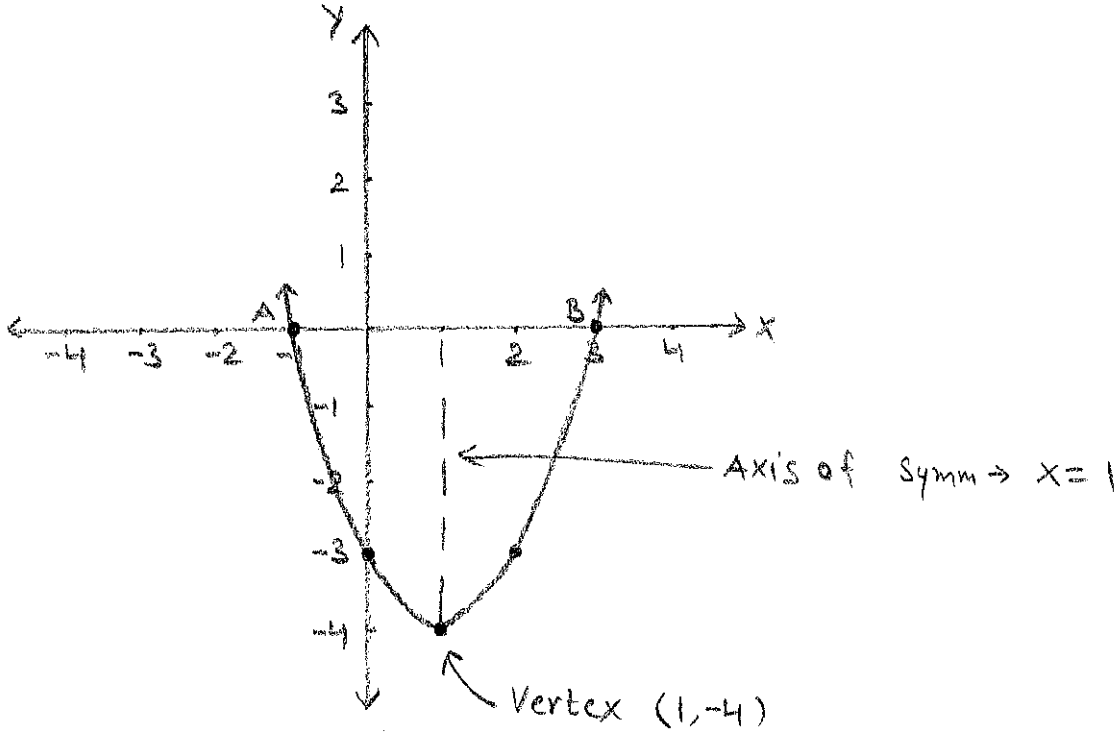
If $x=0$, $y = (0)^2 - 2(0) - 3 = 0 - 0 - 3 = -3$

If $x=1$, $y = (1)^2 - 2(1) - 3 = 1 - 2 - 3 = -4$

If $x=-1$, $y = (-1)^2 - 2(-1) - 3 = 1 + 2 - 3 = 0$

If $x=2$, $y = (2)^2 - 2(2) - 3 = 4 - 4 - 3 = -3$

If $x=3$, $y = (3)^2 - 2(3) - 3 = 9 - 6 - 3 = 0$



Solution → A = -1, B = 3

Q. 3. $y = -x^2 + 2x + 1$

Table

X	Y
0	1
1	2
-1	-2
2	1
3	-2

Calculations

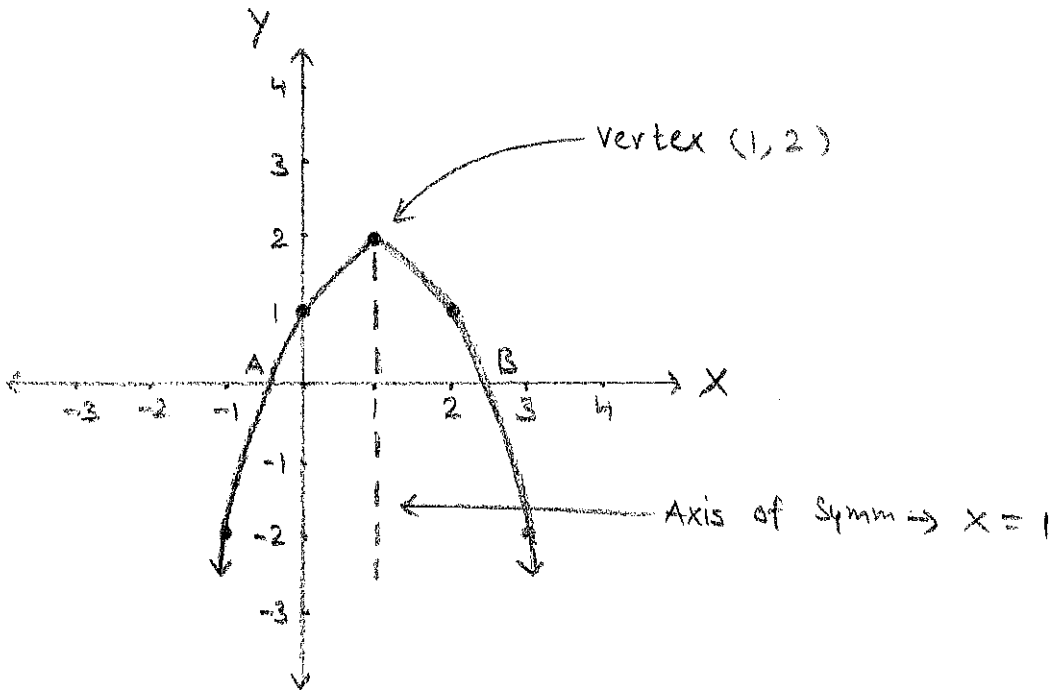
If $x = 0$, $y = -(0)^2 + 2(0) + 1 = 0 + 0 + 1 = 1$

If $x = 1$, $y = -(1)^2 + 2(1) + 1 = -1 + 2 + 1 = 2$

If $x = -1$, $y = -(-1)^2 + 2(-1) + 1 = -(1) - 2 + 1 = -1 - 2 + 1 = -2$

If $x = 2$, $y = -(2)^2 + 2(2) + 1 = -4 + 4 + 1 = 1$

If $x = -3$, $y = -(3)^2 + 2(3) + 1 = -(9) + 6 + 1 = -2$



Solution → A = 0.5 , B = 2.5 (Approximate)

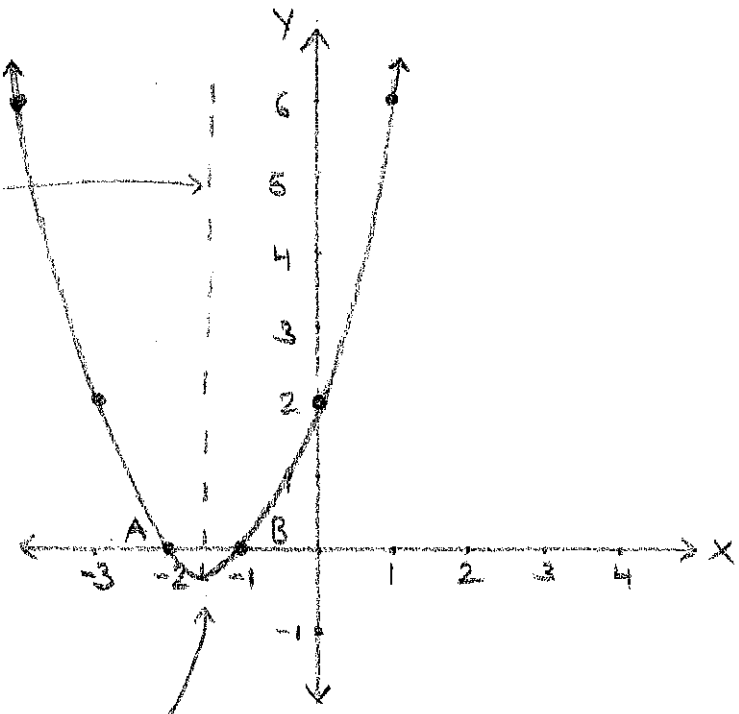
Q.4. $y = x^2 + 3x + 2$

Table

X	Y
0	2
1	6
-1	0
-2	0
-3	2

Calculations
If $x = 0$, $y = (0)^2 + 3(0) + 2 = 0 + 0 + 2 = 2$
If $x = 1$, $y = (1)^2 + 3(1) + 2 = 1 + 3 + 2 = 6$
If $x = -1$, $y = (-1)^2 + 3(-1) + 2 = 1 - 3 + 2 = 0$
If $x = -2$, $y = (-2)^2 + 3(-2) + 2 = 4 - 6 + 2 = 0$
If $x = -3$, $y = (-3)^2 + 3(-3) + 2 = 9 - 9 + 2 = 0$

Axis of Symm
$x = -1.5$



Vertex (-1.5, -0.3) (This is an approximate value)

Solution → A = -2, B = -1

Q.5. $y = 2x^2 + 3x + 1$

Table

X	Y
0	1
1	6
-1	0
-2	3
-3	4

Calculations

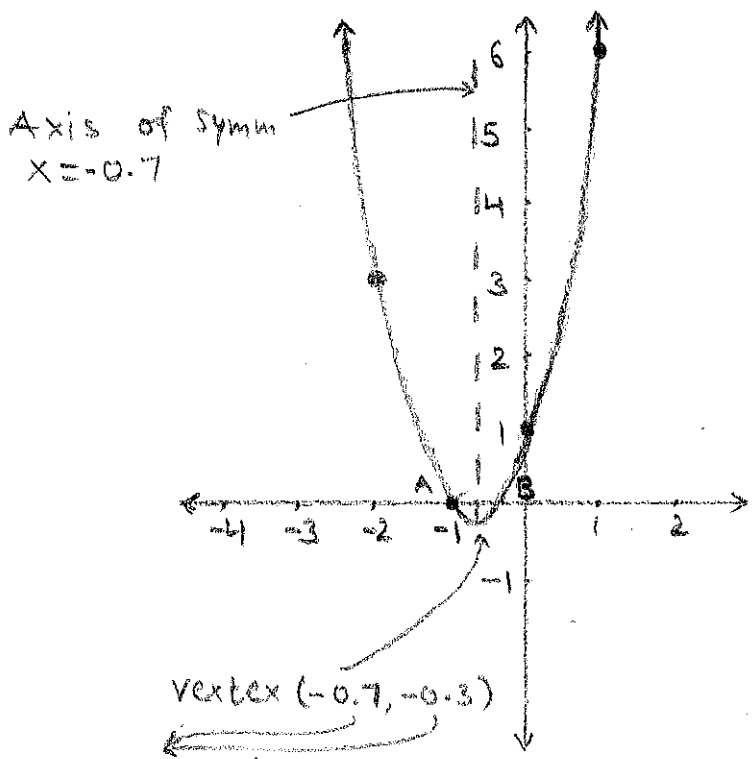
If $x = 0$, $y = 2(0)^2 + 3(0) + 1 = 0 + 0 + 1 = 1$

If $x = 1$, $y = 2(1)^2 + 3(1) + 1 = 2 + 3 + 1 = 6$

If $x = -1$, $y = 2(-1)^2 + 3(-1) + 1 = 2 - 3 + 1 = 0$

If $x = -2$, $y = 2(-2)^2 + 3(-2) + 1 = 8 - 6 + 1 = 3$

If $x = -3$, $y = 2(-3)^2 + 3(-3) + 1 = 18 - 9 + 1 = 10$



This is an approximate value

Solution → A = -1, B = -0.5 (Approximate)

Q.6: $y = -2x^2 + 3x + 1$

Table

X	Y
0	1
1	2
2	-4
-1	-4
-2	-13

Calculations

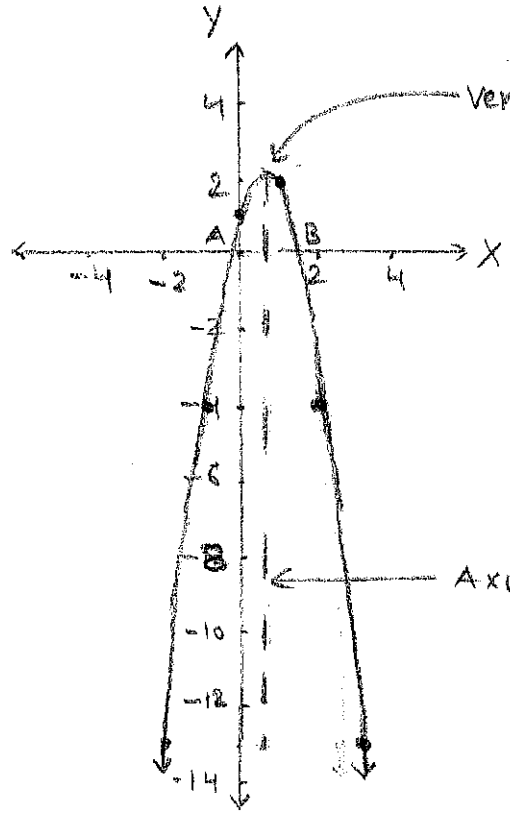
If $x=0$, $y = -2(0)^2 + 3(0) + 1 = 0 + 0 + 1 = 1$

If $x=1$, $y = -2(1)^2 + 3(1) + 1 = -2 + 3 + 1 = 2$

If $x=2$, $y = -2(2)^2 + 3(1) + 1 = -8 + 3 + 1 = -4$

If $x=-1$, $y = -2(-1)^2 + 3(-1) + 1 = -2(1) - 3 + 1 = -2 - 3 + 1 = -4$

If $x=-2$, $y = -2(-2)^2 + 3(-2) + 1 = -2(4) - 6 + 1 = -8 - 6 + 1 = -13$



Vertex (0.8, 2.1) (This is an approximate value)

Axis of Symm → $x = 0.8$

<u>Solution</u> → $A = -0.2$, $B = 1.6$ (Approximate)