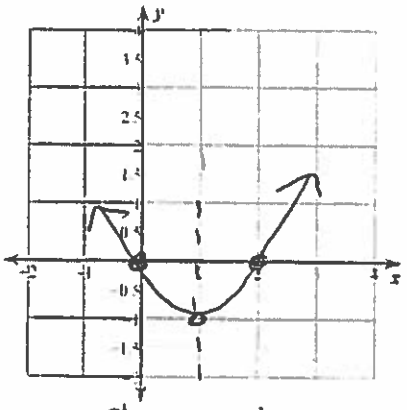
60 $y = a(x-h)^2 + k$ vertex: (0,0)

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

Sketch the graph of each function.

1) $y = (x-1)^2 - 1$



X	y
0	0
1	-1
2	0

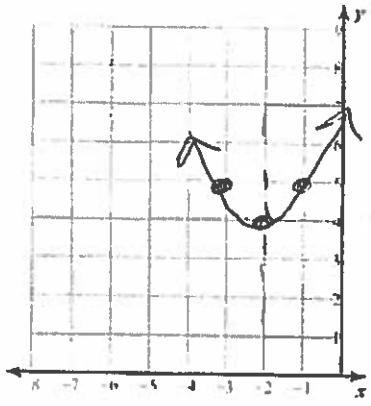
down 1

right 1

Axis of symetry: $x = 1$

Zeros: (0,0)(2,0)

2) $y = (x+2)^2 + 4$



X	Y
-3	5
-2	4
-1	5

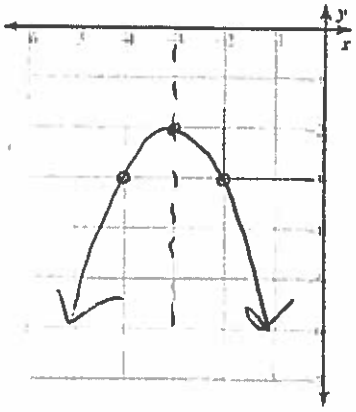
up 4

left 2

Zeros: none

Axis of symmetry: $x = -2$

3) $y = -(x+3)^2 - 2$



X	y
-4	-3
-3	-2
-2	-3

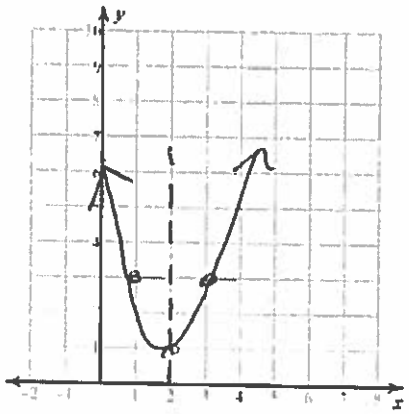
down 2

left 3

Zeros: none

AoS: $x = -3$

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



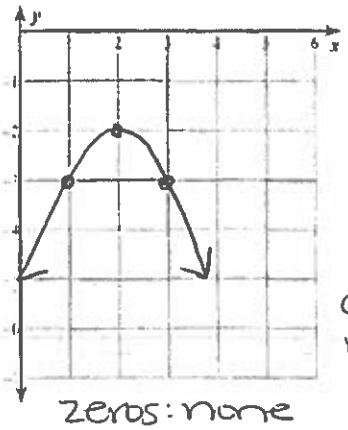
X	y
1	3
2	1
3	3

Up 1, right 2

Zeros: none

AoS: $x = 2$

5) $y = -(x-2)^2 - 2$



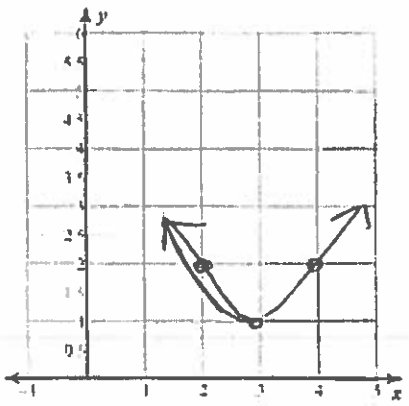
X	Y
1	-3
2	-2
3	-3

down 2
right 2

Zeros: none

Axis of symmetry: $x = 2$

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



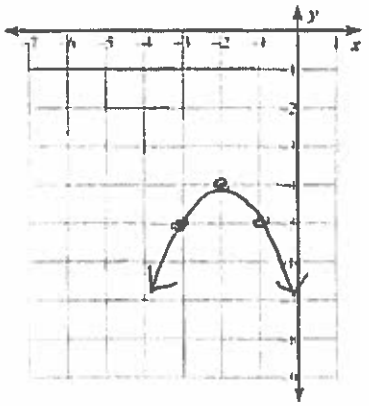
X	Y
2	2
3	1
4	2

right 3
up 1

Zeros. none

Axis of symmetry: $x = 3$

7) $y = -(x+2)^2 - 4$



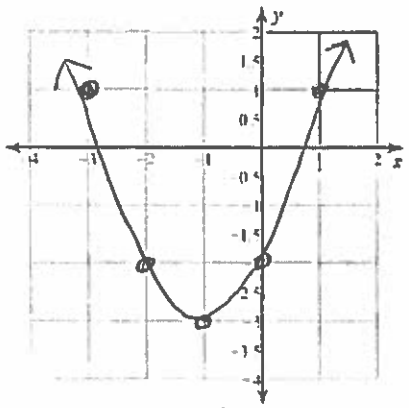
X	Y
-3	-5
-2	-4
-1	-5

left 2
down 4

Zeros: none

Axis of symmetry: $x = -2$

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



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

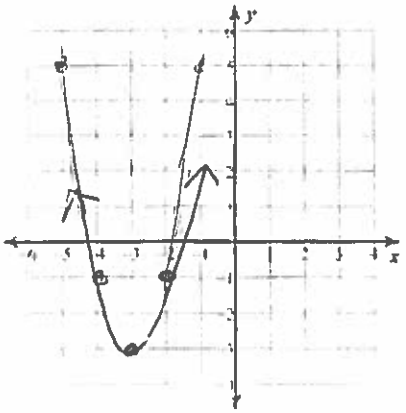
X	Y
-3	1
1	1

down 3
left 1

Zeros: $(-2.75, 0)(0.75, 0)$

Axis of symmetry: $x = -1$

9) $y = 2(x+3)^2 - 3$



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

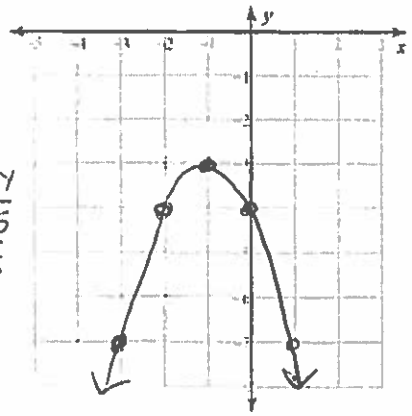
X	Y
-5	5
-1	5

down 3
left 3

Zeros: $(-4.25, 0)(-1.75, 0)$

Axis of symmetry: $x = -3$

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



X	Y
-3	-7
-2	-4
-1	-3
0	-4
1	-7

down 3
left 1

Zeros: none

Axis of symmetry: $x = -1$