MORE FUN PRACTICE! ☺
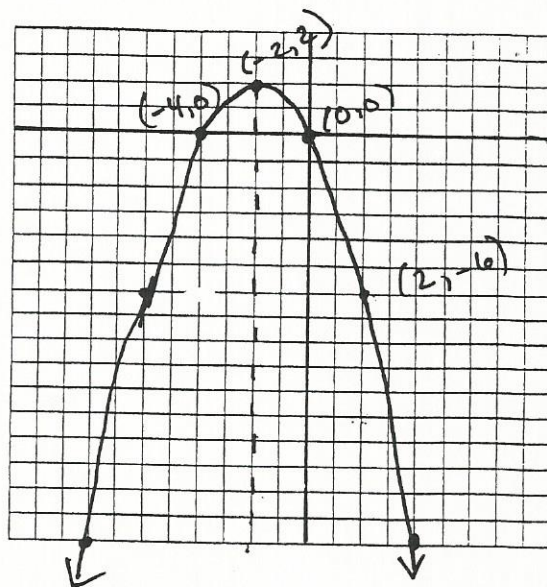
① Graph the equation below:

$$y = -\frac{1}{2}x^2 - 2x$$

↑ opens down

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
2	-6
4	-16

Coordinates of the vertex: $(-2, 2)$

Coordinates of the y-intercept: $(0, 0)$

Coordinates of the point symmetric with the y-intercept: $(-4, 0)$

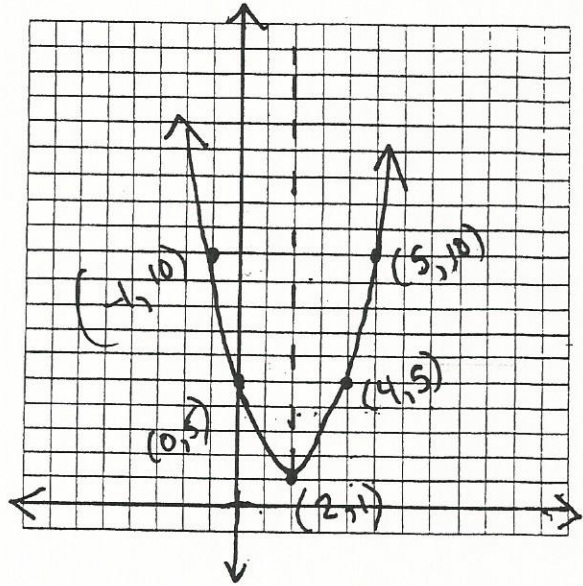Coordinates of the zeros: $(, 0)$, $(-4, 0)$

Equation of the axis of symmetry: $X = -2$

(2) Graph the equation below:

$$y = x^2 - 4x + 5$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
5	10

Coordinates of the vertex:____(2,1)____

Coordinates of the y-intercept:____(0,5)____

Coordinates of the point symmetric with the y-intercept:____(4,5)____

Coordinates of the zeros:____none____
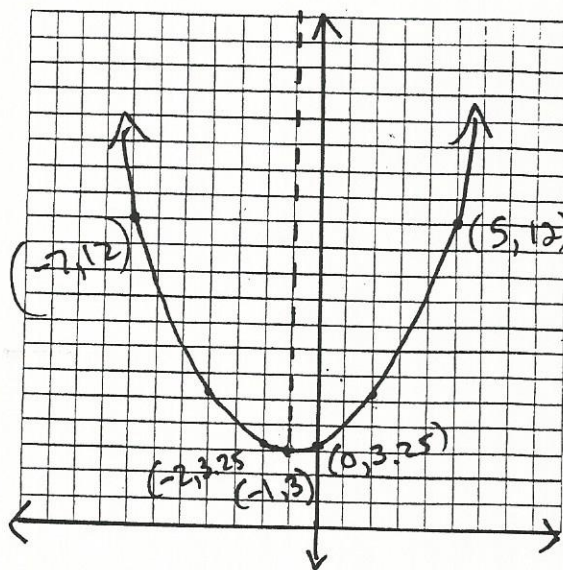
Equation of the axis of symmetry:____x = 2____

(3) Graph the equation below:

$$y = \frac{x^2}{4} + \frac{13}{4} + \frac{x}{2}$$

$$y = \frac{1}{4}x^2 + \frac{1}{2}x + \frac{13}{4}$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
-4	5.25
2	5.25
5	12
-7	12

Coordinates of the vertex: $(-1, 3)$

Coordinates of the y-intercept: $\left(0, \frac{13}{4}\right)$ OR $(0, 3.25)$

Coordinates of the point symmetric with the y-intercept: $(-2, 3.25)$

Coordinates of the zeros: none

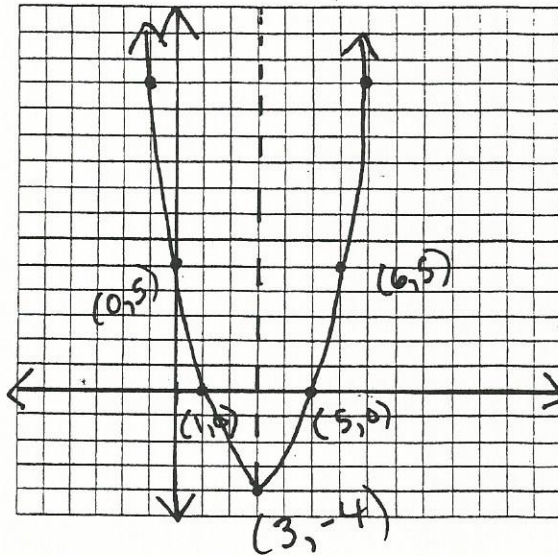Equation of the axis of symmetry: $x = -1$

④ Graph the equation below:

$$y = x^2 + 5 - 6x$$

$$y = x^2 - 6x + 5$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
7	12
-1	12

Coordinates of the vertex: $(3, -4)$

Coordinates of the y-intercept: $(0, 5)$

Coordinates of the point symmetric with the y-intercept: $(6, 5)$
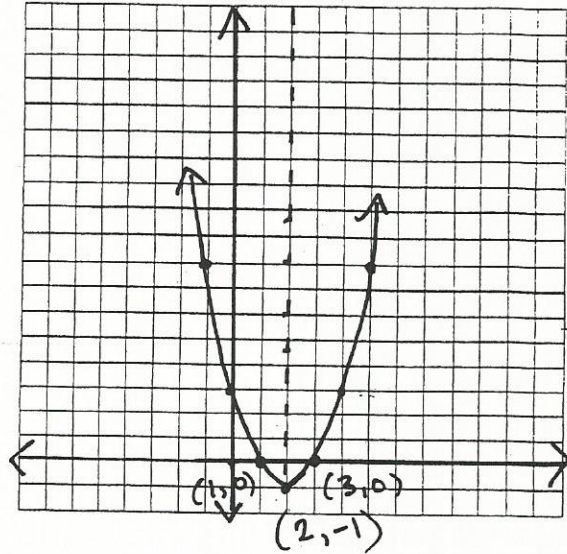
Coordinates of the zeros: $(1, 0)$, $(5, 0)$

Equation of the axis of symmetry: $x = 3$

(5) Graph the equation below:

$$y = x^2 - 4x + 3$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
5	8
-1	8

(1,0) (3,0)

(2,-1)

Coordinates of the vertex: $(2, -1)$

Coordinates of the y-intercept: $(0, 3)$

Coordinates of the point symmetric with the y-intercept: $(4, 3)$

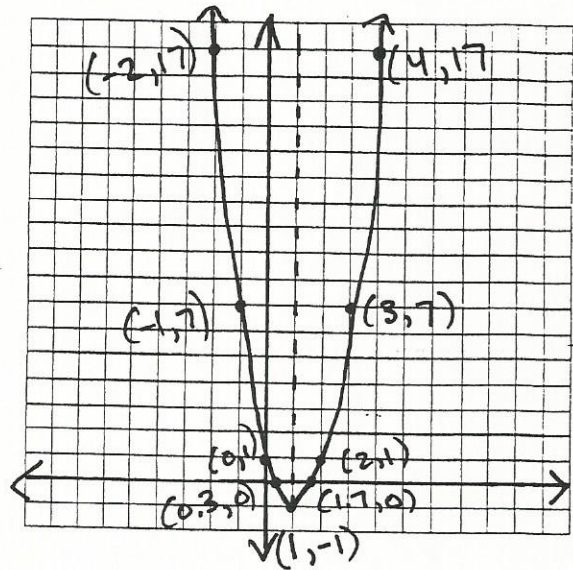Coordinates of the zeros: $(1, 0)$ and $(3, 0)$

Equation of the axis of symmetry: $x = 2$

(6) Graph the equation below:

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

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
4	17
-2	17
3	7
-1	7

Coordinates of the vertex: $(1, -1)$

Coordinates of the y-intercept: $(0, 1)$

Coordinates of the point symmetric with the y-intercept: $(2, 1)$

Coordinates of the zeros: $(0.3, 0)$ and $(1.7, 0)$

Equation of the axis of symmetry: $x = 1$
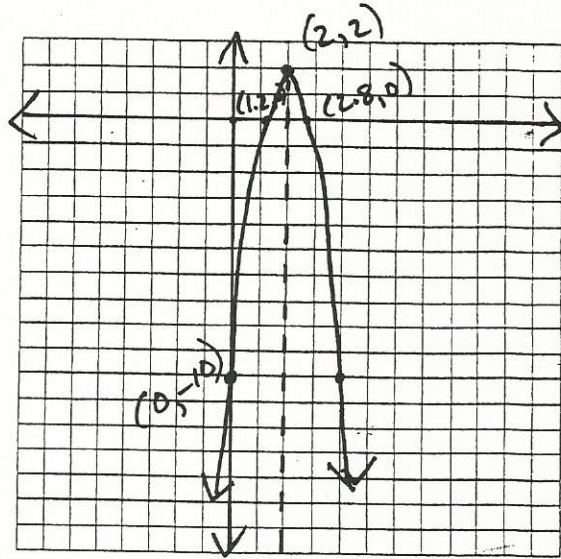
⑦ Graph the equation below:

$$y = -3x^2 - 10 + 12x$$

$$y = -3x^2 + 12x - 10$$

✳ opens down !

Then determine the characteristics listed below and draw the axis of symmetry.

x	y

Coordinates of the vertex: $(2, 2)$

Coordinates of the y-intercept: $(0, -10)$

Coordinates of the point symmetric with the y-intercept: $(4, -10)$
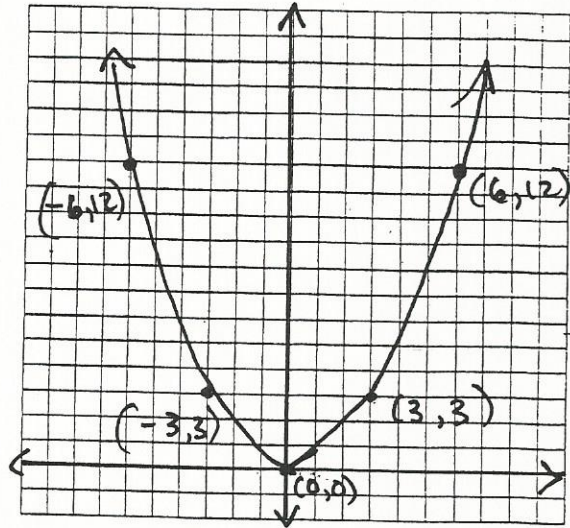
Coordinates of the zeros: $(1.2, 0)$ and $(2.8, 0)$

Equation of the axis of symmetry: $x = 2$

(8) Graph the equation below:

$$y = \frac{1}{3}x^2$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
-3	3
3	3
6	12
-6	12

(-6,12) (6,12)

(-3,3) (3,3)

(0,0)

Coordinates of the vertex: $(0,0)$

Coordinates of the y-intercept: $(0,0)$

Coordinates of the point symmetric with the y-intercept: $(0,0)$

Coordinates of the zeros: $(0,0)$

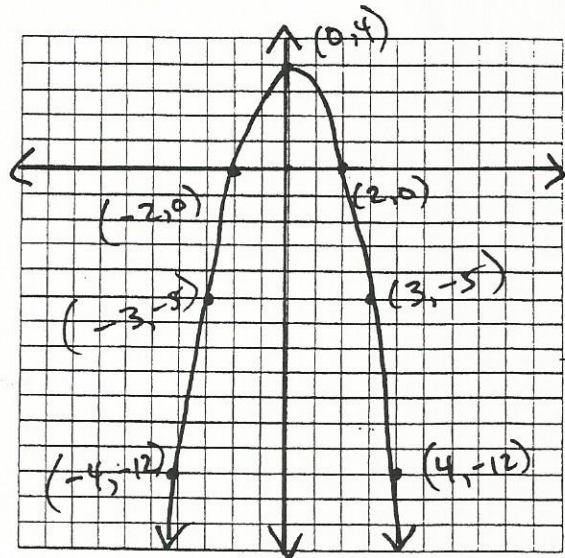Equation of the axis of symmetry: $x = 0$

⑨ Graph the equation below:

$$y = 4 - x^2$$

$$y = -x^2 + 4$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
3	-5
-3	-5
4	-12
-4	-12

Coordinates of the vertex:____(0,4)_____

Coordinates of the y-intercept:____(0,4)_____

Coordinates of the point symmetric with the y-intercept:____(0,4)_____

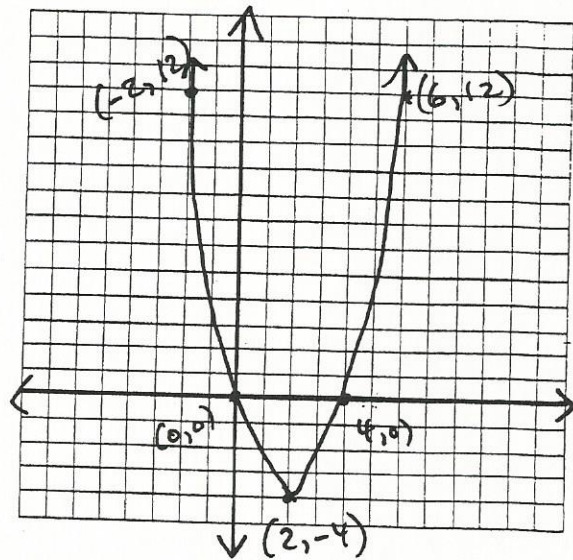Coordinates of the zeros:____(2,0) , (-2,0)_____

Equation of the axis of symmetry:____X = 0_____

(10) Graph the equation below:

$$y = x^2 - 4x$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
6	12
-2	12

(-2, 12)   (6, 12)

(0, 0)   (4, 0)

(2, -4)

Coordinates of the vertex: $(2, -4)$

Coordinates of the y-intercept: $(0, 0)$

Coordinates of the point symmetric with the y-intercept: $(4, 0)$
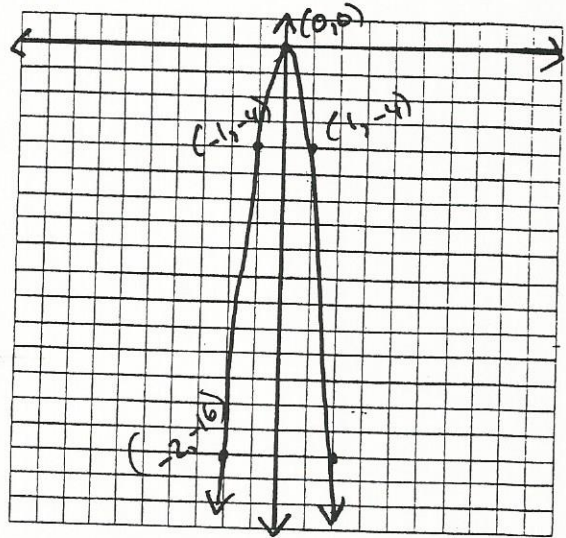
Coordinates of the zeros: $(0, 0)$ and $(4, 0)$

Equation of the axis of symmetry: $x = 2$

(11) Graph the equation below:

$$y = -4x^2$$

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
-2	-16
-1	-4
1	-4
2	-16

Coordinates of the vertex: ___(0, 0)___

Coordinates of the y-intercept: ___(0, 0)___

Coordinates of the point symmetric with the y-intercept: ___(0, 0)___

Coordinates of the zeros: ___(0, 0)___
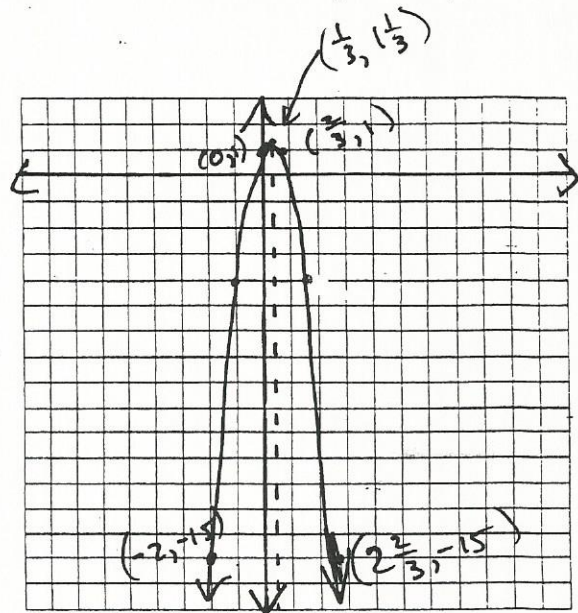
Equation of the axis of symmetry: ___X = 0___

(12) Graph the equation below:

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

Then determine the characteristics listed below and draw the axis of symmetry.

x	y
-1	-4
$1\frac{2}{3}$	-4
-2	-15
$2\frac{2}{3}$	-15

Coordinates of the vertex: $\left(\frac{1}{3}, \frac{4}{3}\right)$ or $\left(\frac{1}{3}, 1\frac{1}{3}\right)$

Coordinates of the y-intercept: $(0, 1)$

Coordinates of the point symmetric with the y-intercept: $\left(\frac{2}{3}, 1\right)$

Coordinates of the zeros: $\left(-\frac{1}{3}, 0\right)$ and $(1, 0)$

Equation of the axis of symmetry: $x = \frac{1}{3}$