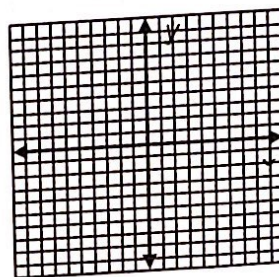
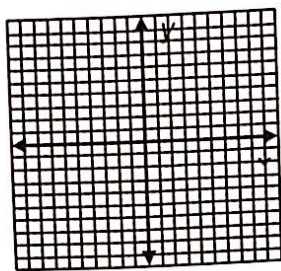
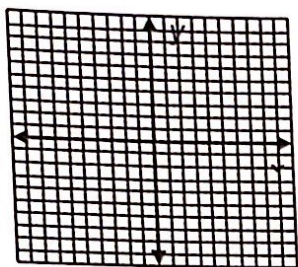


Quadratic functions are written in the form: _____

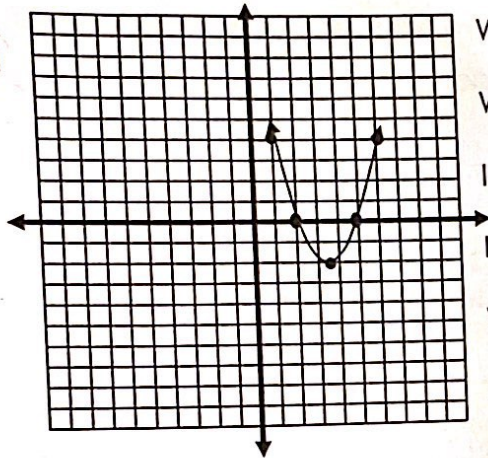
The **x-intercepts** (when $y = 0$) of the parabola $y = ax^2 + bx + c$ are called the _____ or _____ of the equation ($ax^2 + bx + c = 0$)

How many roots are possible to obtain from a quadratic equation? _____

Draw a picture to illustrate each situation



EX1. Given the following graph of the equation $y = x^2 - 7x + 10$. Answer the following questions.



What is the axis of symmetry? _____

What are the coordinates of the turning point? _____

Is the T.P. a max or minimum point? _____

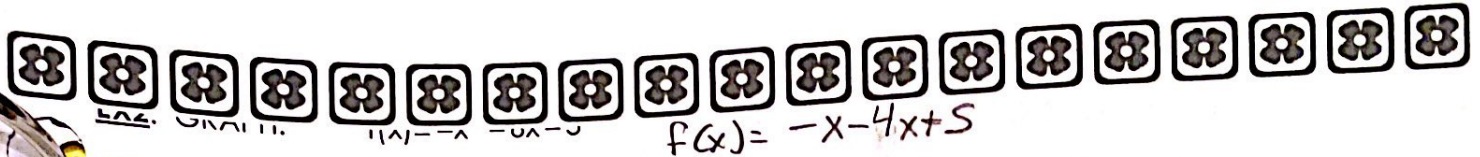
How many zeros are there? _____

What are the solutions of this equation? _____

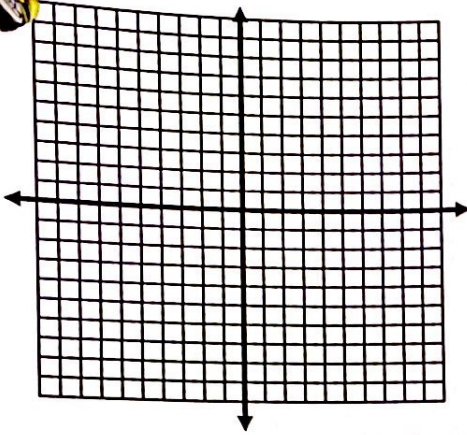
What are the solutions called? _____

Now, solve the equation algebraically: $0 = x^2 - 7x + 10$

What do you notice?



$$f(x) = -x^2 - 4x + 5$$

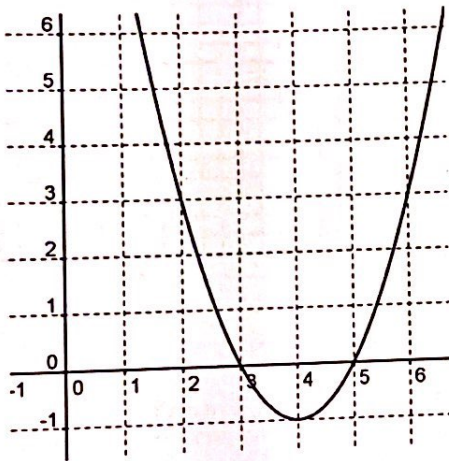


- What is the axis of symmetry? _____
- What are the coordinates of the turning point? _____
- Is the T.P. a max or minimum point? _____
- How many zeros are there? _____
- What are the solutions of this equation? _____
- What do you call these solutions? _____

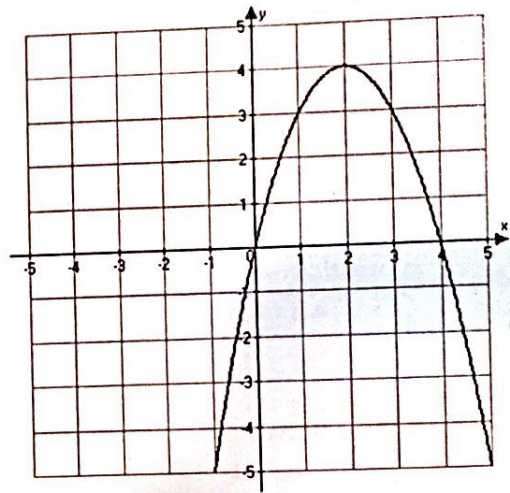
Procedure for writing an equation for a graphed quadratic function

Given the two graphs below, write an equation for each.

Ex 3:



Ex 4:



GRAPHING/EXPLORING QUADRATIC EQUATIONS CONT... (DAY 4)

Ex1: Graph: $f(x) = 3x^2 + 6x - 4$

Axis of symmetry: _____

Vertex: _____

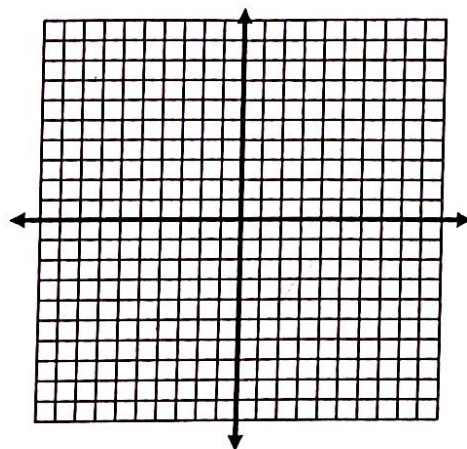
Domain _____

Range _____

Find $f(1)$ _____

Find $f(-2)$ _____

Is the parabola a maximum or a minimum? Explain: _____



Ex2: Graph: $f(x) = -2x^2 - 8x - 2$

Axis of symmetry: _____

Vertex: _____

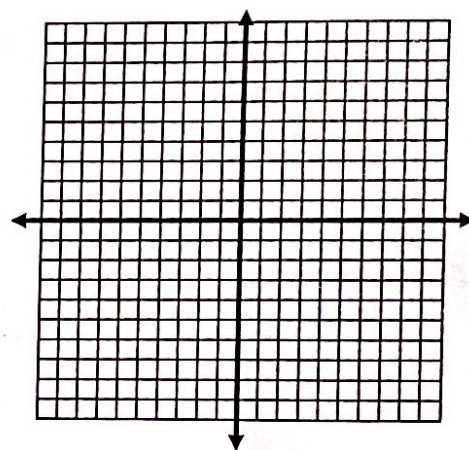
Domain _____

Range _____

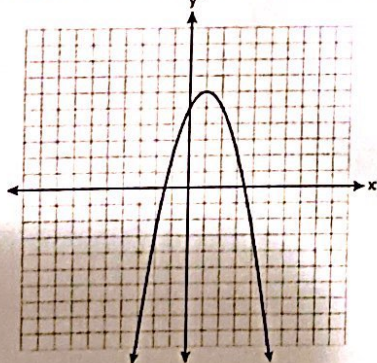
What is the y-intercept _____

Find $f(0)$ _____

Find $f(x) = 4$ _____



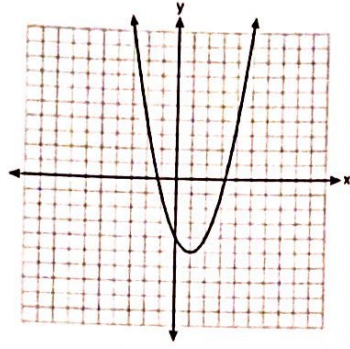
Ex3: Given the following two functions, which one has the larger maximum?



$$f(x) = -2x^2 - 8x + 3$$



Ex4: Given the following three functions, which one has the least minimum?



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

$$f(x) = x^2 + 2x - 24$$

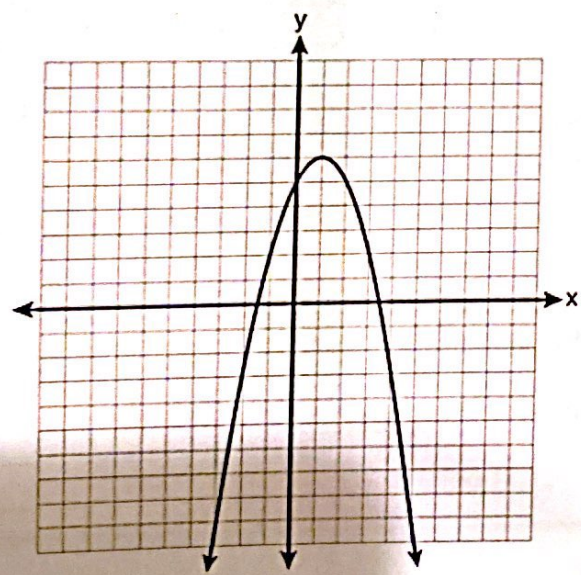
Ex5: The equation of the axis of symmetry of the graph of $y = 2x^2 - 3x + 7$ is

- (1) $x = \frac{3}{4}$ (2) $y = \frac{3}{4}$ (3) $x = \frac{3}{2}$ (4) $y = \frac{3}{2}$

Ex6: The roots of the equation $3x^2 - 27x = 0$ are

- (1) 0 and 9 (3) 0 and -9
(2) 0 and 3 (4) 0 and -3

Ex7: What are the vertex and axis of symmetry of the parabola shown in the graph below?



- (1) Vertex (1, 6); axis of symmetry: $y = 1$
(2) Vertex (1, 6); axis of symmetry: $x = 1$
(3) Vertex (6, 1); axis of symmetry: $y = 1$
(4) Vertex (6, 1); axis of symmetry: $x = 1$