

Name: Key Hr: \_\_\_\_\_

## Finding Parts of a Parabola Review

What are the Domain and Range for this quadratic graph?

Interval Notation:

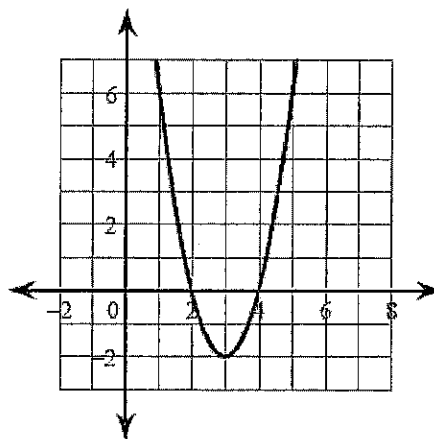
Domain:  $(-\infty, \infty)$

Range:  $[-2, \infty)$

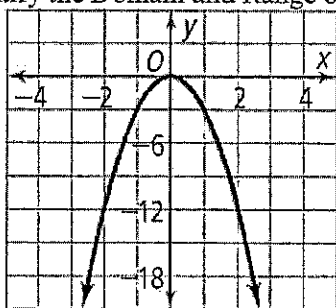
Set Builder Notation:

Domain:  $\mathbb{R}$

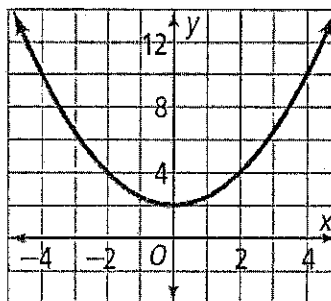
Range:  $y \geq -2$



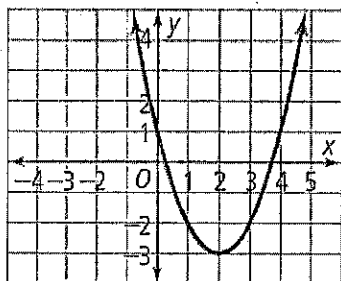
Identify the Domain and Range of each:



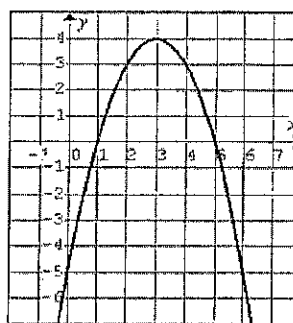
1. Domain:  $(-\infty, \infty)$   
Range:  $(-\infty, 0]$



2. Domain:  $(-\infty, \infty)$   
Range:  $[2, \infty)$



3. Domain:  $(-\infty, \infty)$  or  $\mathbb{R}$   
Range:  $[-3, \infty)$  or  $y \geq -3$



4. Domain:  $(-\infty, \infty)$   
Range:  $(-\infty, 4]$

5. Given the graph of  $f(x)$  at the right, find the following:

a.  $f(-4) = \underline{2}$

b.  $f(0) = \underline{0}$

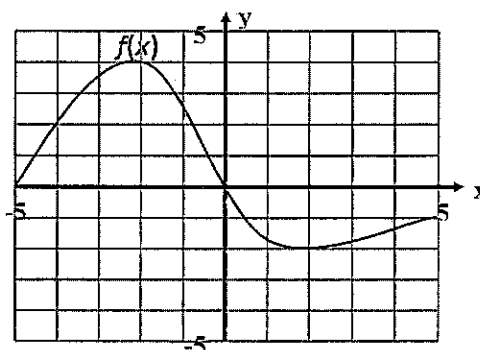
c.  $f(3) = \underline{-1.75}$

d.  $f(-5) = \underline{0}$

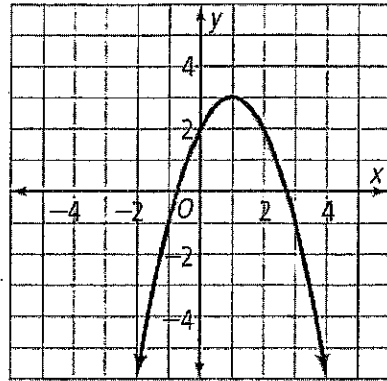
e.  $x$  when  $f(x) = -2$   $2$

f.  $x$  when  $f(x) = 0$   $-5$  &  $0$

each



6. Given the graph at the right, find the following:



- 1/2 each circled
- Vertex:  $(1, 3)$
  - Axis of Symmetry:  $x = 1$
  - x-intercepts:  $1 \pm \sqrt{3}$  or  $-0.73$  &  $2.73$
  - y-intercept:  $(0, 2)$
  - Max/Min:  $\text{max}$
  - Vertex Form of the Equation:  $y = -(x-1)^2 + 3$
  - $f(4) = -6$
  - $f(0) = 2$
  - $f(6) = -22$
  - Domain:  $(-\infty, \infty)$  or  $\mathbb{R}$
  - Range:  $(-\infty, 3]$  or  $y \leq 3$
  - Direction of opening:  $\text{down}$

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

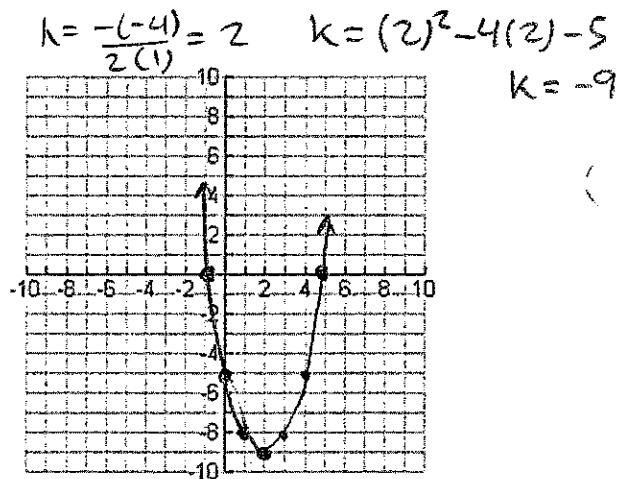
$$-3 = -1(x-1)^2$$

$$\sqrt{3} = \sqrt{(x-1)^2}$$

$$\pm\sqrt{3} = x-1 \quad x = 1 \pm \sqrt{3}$$

7. Given the equation  $f(x) = x^2 - 4x - 5$ , find the following:

- Vertex:  $(2, -9)$
- Axis of Symmetry:  $x = 2$
- x-intercept(s):  $(5, 0)$  &  $(-1, 0)$  :  $(x-5)(x+1)$
- y-intercept:  $(0, -5)$
- Max/Min:  $\text{min}$
- Sketch a graph
- $f(-2) = 7$
- Domain:  $(-\infty, \infty)$  or  $\mathbb{R}$
- Range:  $[-9, \infty)$
- Direction of opening:  $\text{up}$



8. Given the equation  $f(x) = 2(x-4)^2 - 8$ , find the following:

- Vertex:  $(4, -8)$
- Axis of Symmetry:  $x = 4$
- x-intercept(s):  $(6, 0)$  &  $(2, 0)$
- y-intercept:  $(0, 24)$
- Max/Min:  $\text{min}$
- Sketch a graph
- $f(3) = -6$
- Direction of opening:  $\text{up}$
- Domain:  $(-\infty, \infty)$  or  $\mathbb{R}$
- Range:  $[-8, \infty)$

