

Day 3 - Characteristics of Quadratic Functions

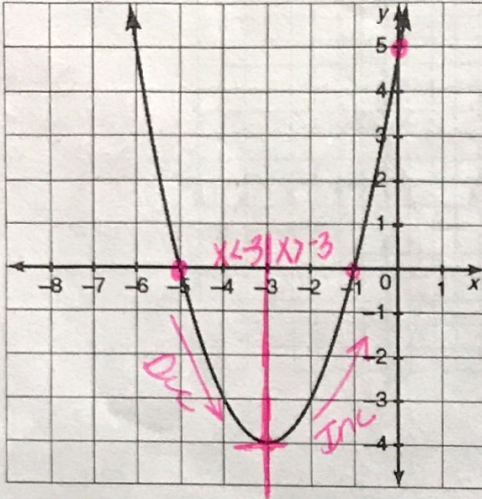
Name: Key

practice Assignment

Date: \_\_\_\_\_ Block: \_\_\_\_\_

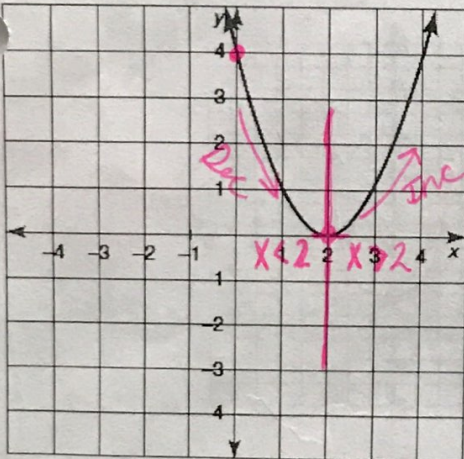
Identify all of the characteristics listed for the following graphs.

1.



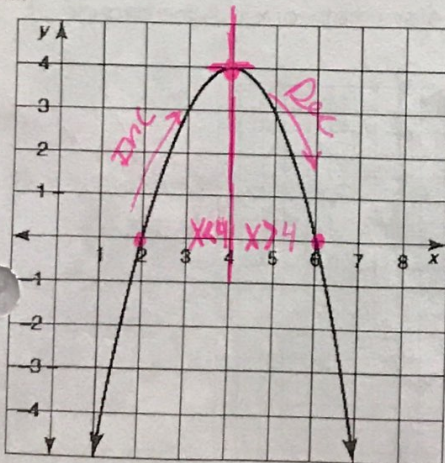
Domain: all real #'s      Range:  $y \geq -4$   
 Vertex:  $(-3, -4)$       Axis of Sym.  $x = -3$   
 Y-Intercept:  $(0, 5)$       Zeros:  $x = -5$  and  $-1$   
 Extrema: minimum      Max/Min Value:  $y = -4$   
 Int of Inc:  $x > -3$       Int of Dec:  $x < -3$   
 Positive:  $x < -5$  or  $x > -1$       Negative:  $-5 < x < -1$   
 End Behavior: As  $x \rightarrow -\infty$ ,  $f(x) \rightarrow \infty$ . As  $x \rightarrow \infty$ ,  $f(x) \rightarrow \infty$

2.



Domain: all real #'s      Range:  $y \geq 0$   
 Vertex:  $(2, 0)$       Axis of Sym.  $x = 2$   
 Y-Intercept:  $(0, 4)$       Zeros:  $x = 2$   
 Extrema: minimum      Max/Min Value:  $y = 0$   
 Int of Inc:  $x > 2$       Int of Dec:  $x < 2$   
 Positive:  $x < 2$  or  $x > 2$       Negative: none  
 End Behavior: As  $x \rightarrow -\infty$ ,  $f(x) \rightarrow \infty$ . As  $x \rightarrow \infty$ ,  $f(x) \rightarrow \infty$

3.

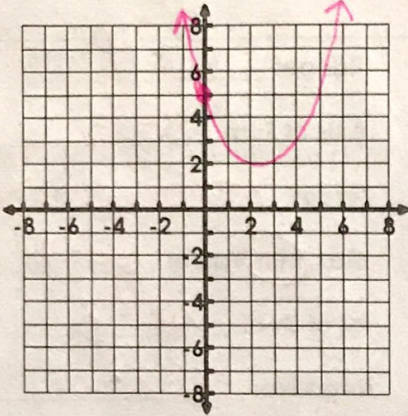


Domain: all real #'s      Range:  $y \leq 4$   
 Vertex:  $(4, 4)$       Axis of Sym.  $x = 4$   
 Y-Intercept: not visible      Zeros:  $x = 2$  and  $6$   
 Extrema: max      Max/Min Value:  $y = 4$   
 Int of Inc:  $x < 4$       Int of Dec:  $x > 4$   
 Positive:  $2 < x < 6$       Negative:  $x < 2$  or  $x > 6$   
 End Behavior: As  $x \rightarrow -\infty$ ,  $f(x) \rightarrow -\infty$ . As  $x \rightarrow \infty$ ,  $f(x) \rightarrow -\infty$

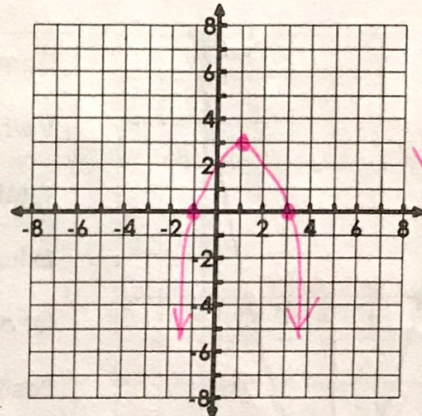


Problems 4 – 9: Use the given description to create a rough sketch of a quadratic function. Your graphs might look different than mine, but they must meet the characteristic described below. Start by placing your characteristics on the graph and create the sketch after that.

4. Parabola that opens up and has a y-intercept of (0, 5).

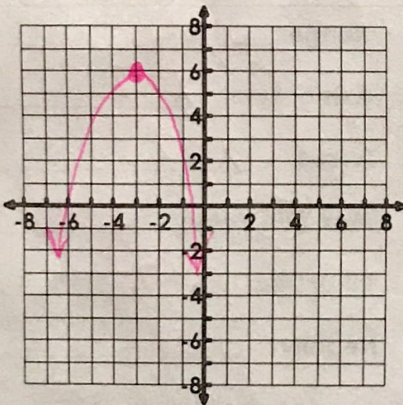


5. Parabola that opens down and has x-intercepts of 3 and -1.



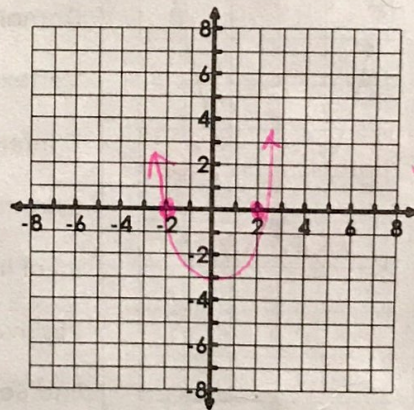
Vertex must be (1, -)

6. Parabola with end behavior that approaches  $-\infty$  and has a vertex of (-3, 6).



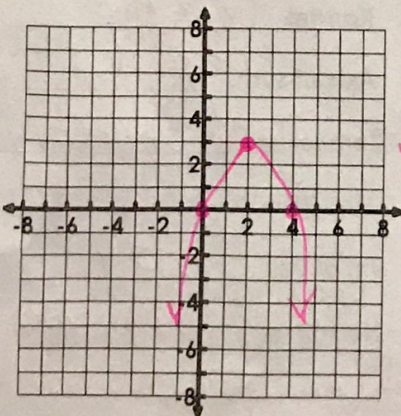
opens down

7. Parabola with a negative part of the graph between  $-2 \leq x \leq 2$ .



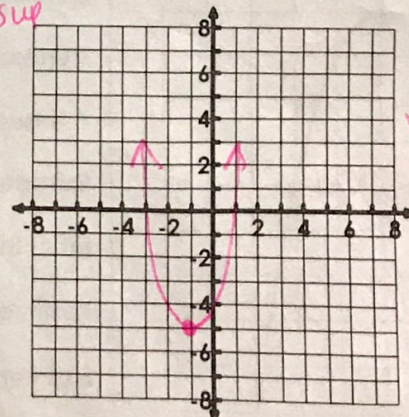
Vertex must be (0, -)

8. Parabola with a maximum of 3 and zeros of 0 and 4.



Vertex must be (2, 3)

9. Parabola with an axis of symmetry of  $x = -1$  and a range of  $y \geq -5$ .



opens up

Vertex must be (-1, -5)