

Quadratic Functions-Worksheet

Find the vertex and “a” and then use to sketch the graph of each function.
Find the intercepts, axis of symmetry, and range of each function.

Remember the domain is $(-\infty, \infty)$

1. $f(x) = (x - 4)^2 - 1$

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

2. $f(x) = -(x + 3)^2 + 1$

9. $f(x) = x^2 + 2x - 5$

3. $f(x) = \frac{1}{2}(x - 1)^2 + 2$

10. $f(x) = -x^2 - 2x - 8$

11. $f(x) = x^2 + 4x - 7$

4. $f(x) = \frac{1}{2}(x + 3)^2 + 1$

12. $f(x) = 2x - x^2 + 3$

5. $f(x) = (x + 2)^2 - 3$

13. $f(x) = x^2 + 6x + 3$

6. $f(x) = 2(x + 2)^2 - 1$

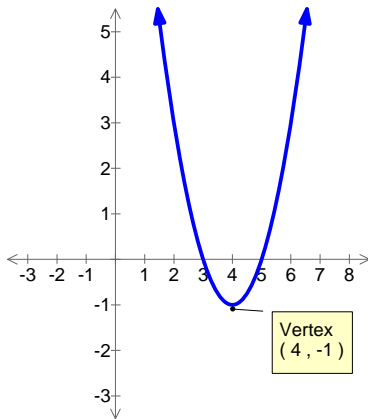
14. $f(x) = 2x^2 + 4x - 3$

7. $f(x) = -(x - 1)^2 + 4$

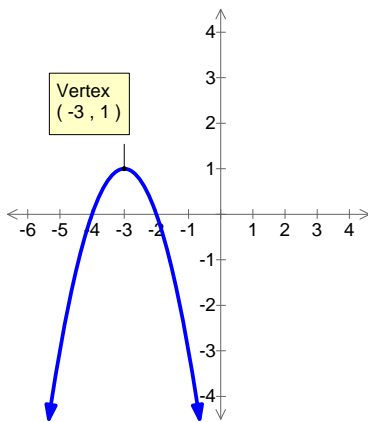
15. $f(x) = 2x - x^2 - 2$

Quadratic Functions Worksheet--Answers

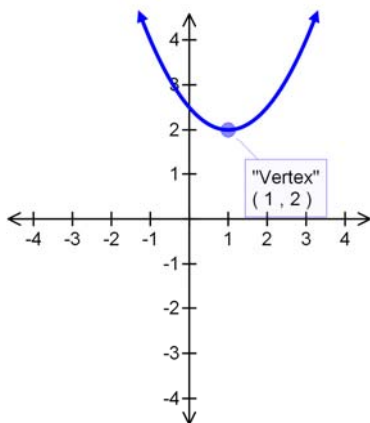
1. x -int(s): $x=3, 5$; y -int= 15
Axis: $x=4$; Range: $[-1, \infty)$



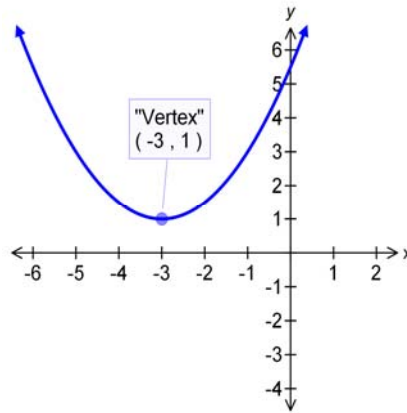
2. x -int(s): $x=-2, -4$;
 y -int=-8 Axis: $x=-3$;
Range: $(-\infty, -1]$



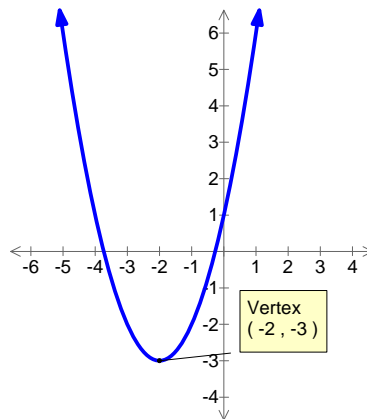
3. x -int(s): NONE; y -int= $\frac{5}{2}$
Axis: $x=1$;
Range: $[2, \infty)$



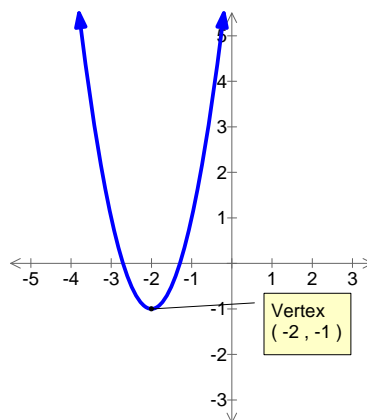
4. x -int(s): NONE; y -int= $\frac{11}{2}$
Axis: $x=-3$; Range: $[1, \infty)$



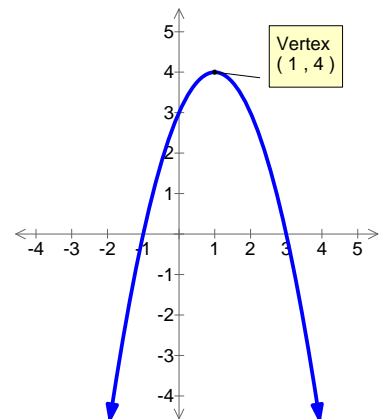
5. x -int(s): $x=-2 \pm \sqrt{3}$;
 y -int=1 Axis: $x=-2$;
Range: $[-3, \infty)$



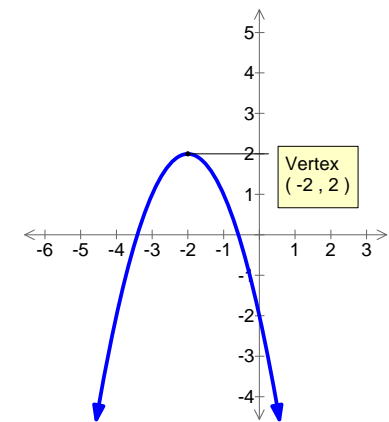
6. x -int(s): $x=-2 \pm \sqrt{\frac{1}{2}}$;
 y -int=7; Axis: $x=-2$;
Range: $[-1, \infty)$



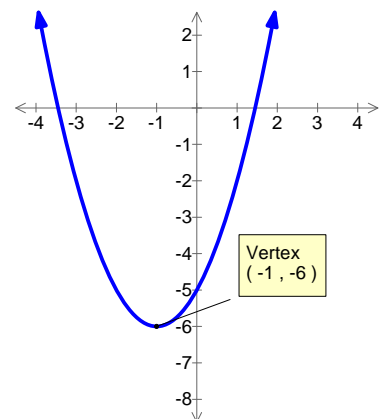
7. x -int(s): $x=-1, 3$; y -int= 3
Axis: $x=1$; Range: $(-\infty, 4]$



8. x -int(s): $x=-2 \pm \sqrt{2}$;
 y -int= -2; Axis: $x=-2$;
Range: $(-\infty, 2]$



9. x -int(s): $x=-1 \pm \sqrt{6}$
 y -int= -5; Axis: $x=-1$;
Range: $[-6, \infty)$
 $f(x) = (x+1)^2 - 6$



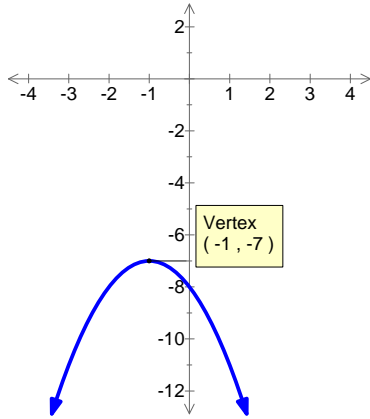
Quadratic Functions Worksheet--Answers

10. x-int(s): none

$$f(x) = -(x+1)^2 - 7$$

y-int= -8; Axis: $x = -1$;

Range: $(-\infty, -7]$

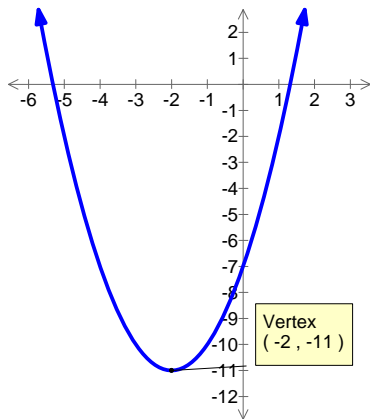


11. x-int(s): $x = -2 \pm \sqrt{11}$

$$f(x) = (x+2)^2 - 11$$

y-int= -7; Axis: $x = -2$;

Range: $[-11, \infty)$

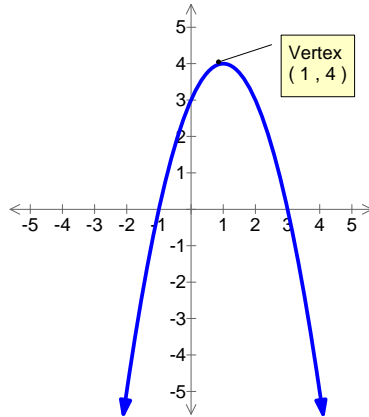


12. x-int(s): $x = -1, 3$

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

y-int= 3; Axis: $x = 1$;

Range: $(-\infty, 4]$

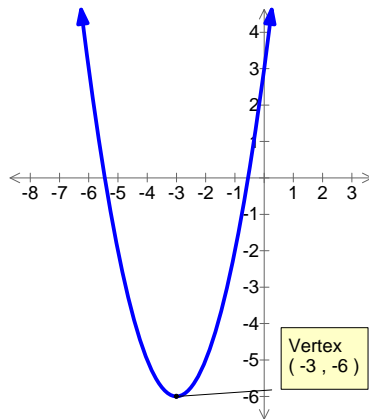


13. x-int(s): $x = -3 \pm \sqrt{6}$

$$f(x) = (x+3)^2 - 6$$

y-int= 3; Axis: $x = -3$;

Range: $[-6, \infty)$

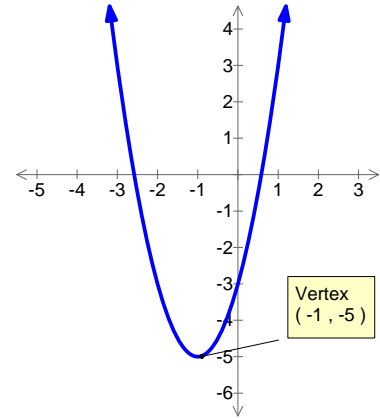


14. x-int(s): $x = \frac{-2 \pm \sqrt{10}}{2}$

$$f(x) = 2(x+1)^2 - 5$$

y-int= -3; Axis: $x = -1$;

Range: $[-5, \infty)$



15. x-int(s): NONE

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

y-int= -2; Axis: $x = 1$;

Range: $(-\infty, -1]$

