

## 4.4 Quadratic Forms

Use the information provided to write the vertex form equation of each parabola.

1)  $y = -x^2 - 18x - 76$

2)  $y = x^2 + 2x$

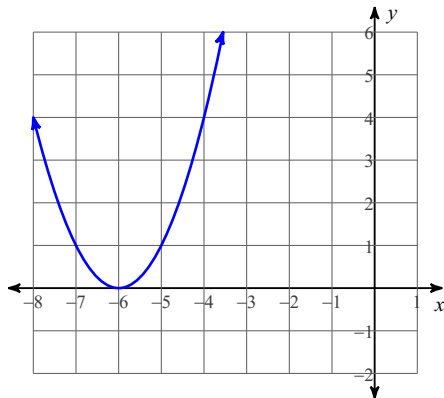
3) Vertex:  $(4, 9)$ , y-intercept:  $-23$

4) Vertex:  $(4, -8)$ , y-intercept:  $-72$

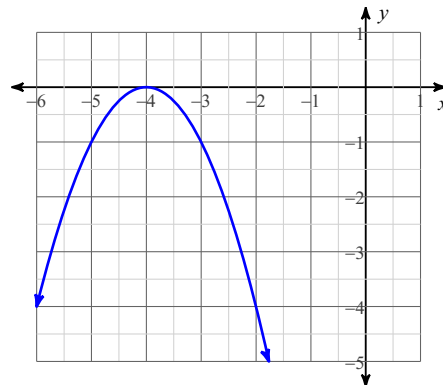
5) Vertex:  $(8, 7)$ ,  
Passes through:  $(7, 6)$

6) Vertex:  $(1, 4)$ ,  
Passes through:  $(4, 13)$

7)



8)



Use the information provided to write the intercept form equation of each parabola.

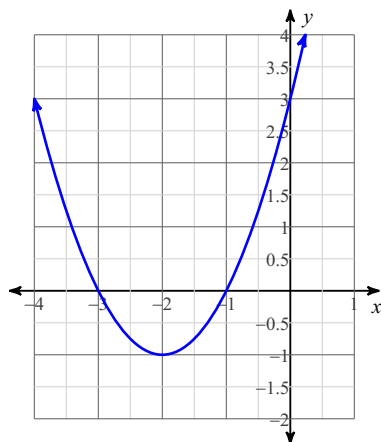
9)  $y = x^2 - 6x - 16$

10)  $y = 2x^2 + 4x - 6$

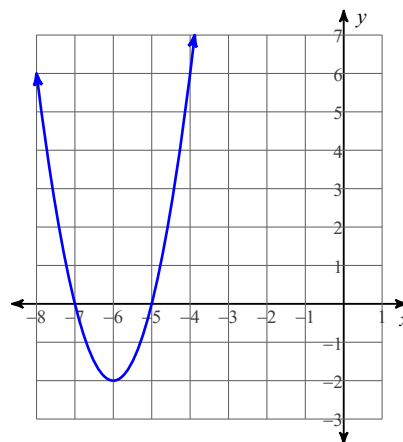
11) Passes through  $(4, 0)$ ,  $(5, 0)$ ,  $(6, -80)$

12) Passes through  $(5, 0)$ ,  $(6, 0)$ ,  $(3, 12)$

13)



14)



**Solve each equation by factoring.**

15)  $a^2 + 3a = 18$

16)  $x^2 = 14 - 5x$

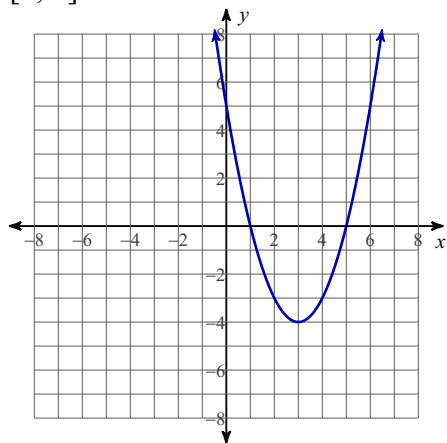
**Simplify. Your answer should contain only positive exponents.**

17)  $(2x^{-1}y^{-3})^{-4} \cdot 2y^2$

18)  $(2yx^{-1})^{-4} \cdot y^4$

**Find the average rate of change on the interval below and state the end behavior.**

19)  $[1, 4]$



20)  $[-3, 0]$

