Name: Date: Period:

Convert to vertex form. Identify the vertex and the axis of symmetry.

1. $y = x^2 + 16x + 71$

V: (,) Axis of Symmetry:

2. $y = x^2 - 2x - 5$

V: (,) Axis of Symmetry:

3. $y = -x^2 - 14x - 59$

V: (,) Axis of Symmetry:

4. $y = 2x^2 + 36x + 170$

V: (,) Axis of Symmetry:

5. $y = x^2 - 12x + 46$

V: (,) Axis of Symmetry:

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

V: (,) Axis of Symmetry:

7. $y = x^2 - 6x + 5$

V: (,) Axis of Symmetry:

8. $y = (x + 5)(x + 4)$

V: (,) Axis of Symmetry:

9. $\frac{1}{2}(y + 4) = (x - 7)^2$

V: (,) Axis of Symmetry:

10. $6x^2 + 12x + y + 13 = 0$

V: (,) Axis of Symmetry:

11. $162x + 731 = -y - 9x^2$

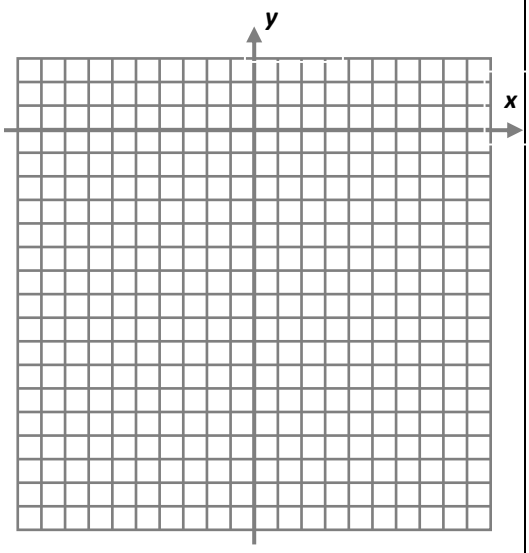
V: (,) Axis of Symmetry:

12. $x^2 - 12x + y + 40 = 0$

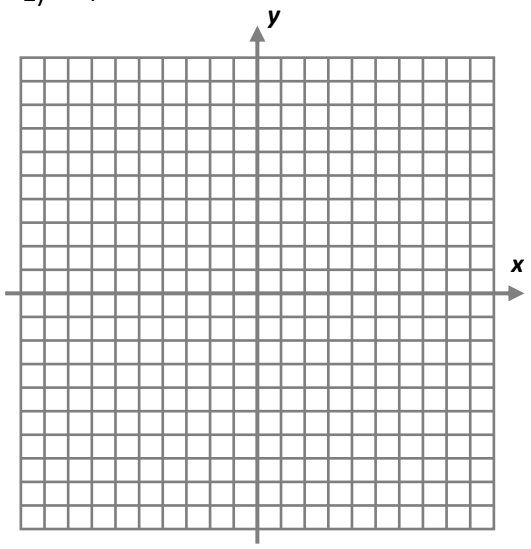
V: (,) Axis of Symmetry:

Compare each function to the parent function and describe the change, then graph the following equations.

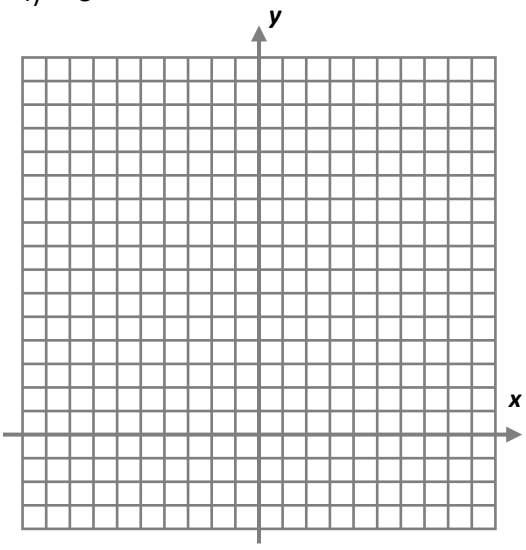
13. $f(x) = -3(x - 2)^2 - 4$



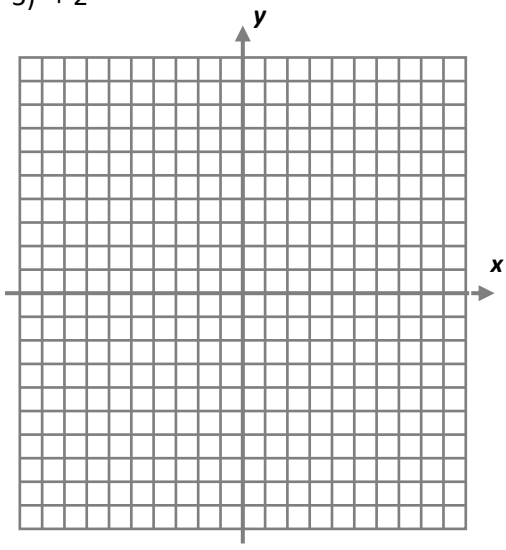
14. $f(x) = -\frac{1}{4}(x - 1)^2 + 4$



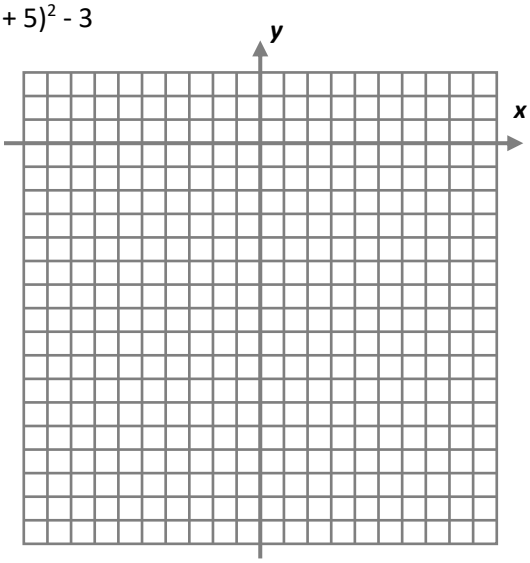
15. $f(x) = \frac{1}{4}(x + 4)^2 + 3$



16. $f(x) = \frac{1}{4}(x + 5)^2 + 2$



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



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