

Name:
Instructor:

Date:
Section:

Practice Set 8.5

Use the choices to fill in each blank.

vertex	axis of symmetry	parabola	hyperbola
x	a	b	c
$x = -\frac{b}{2a}$	$\left(-\frac{b}{2a}, f\left(\frac{-b}{2a}\right)\right)$	y	0

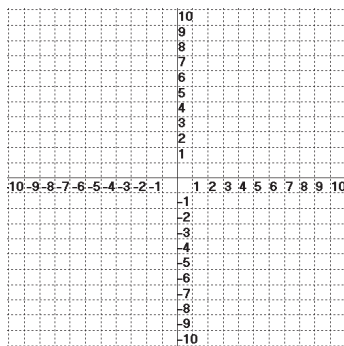
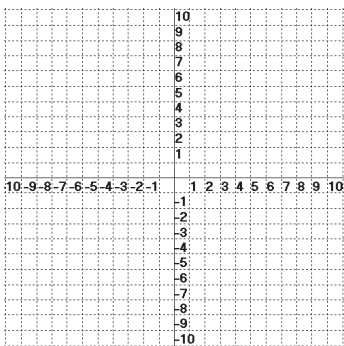
- The graph of a quadratic equation is called a _____.
- The highest or lowest point on the graph of a quadratic equation is called the _____.
- The equation for the axis of symmetry for a quadratic equation of the form $f(x) = ax^2 + bx + c$ is _____. One way to find the coordinates of the vertex is to use the formula _____.
- To find the x -intercepts of the graph of a quadratic function, set $y =$ _____ and solve for _____.

Determine whether the parabola opens upward or downward. Find the axis of symmetry, vertex, and x - and y -intercepts.

- | | | |
|--------------------------|-----------------------------|-----------|
| 5. $f(x) = x^2 + 6x + 8$ | 6. $f(x) = x^2 + x - 12$ | 5. _____ |
| | | 6. _____ |
| 7. $f(x) = -x^2 - x + 2$ | 8. $f(x) = -x^2 - 2x + 8$ | 7. _____ |
| | | 8. _____ |
| 9. $g(x) = 2x^2 + x - 3$ | 10. $h(x) = 3x^2 + 5x + 12$ | 9. _____ |
| | | 10. _____ |

Graph each pair of functions on the same axes. Describe how the graph is translated.

11. $f(x) = x^2, f(x) = (x + 1)^2 - 2$ 12. $f(x) = -x^2, f(x) = -(x - 2)^2 + 3$ 11. _____



12. _____

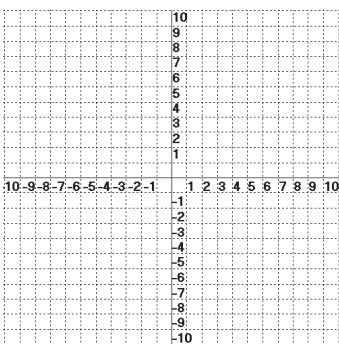
Express each function in the form $f(x) = a(x - h)^2 + k$.

- | | | |
|----------------------------|---------------------------|-----------|
| 13. $f(x) = x^2 + 2x - 5$ | 14. $f(x) = x^2 - 4x + 8$ | 13. _____ |
| | | 14. _____ |
| 15. $g(x) = -x^2 + 6x + 2$ | 16. $h(x) = 2x^2 + x + 5$ | 15. _____ |
| | | 16. _____ |

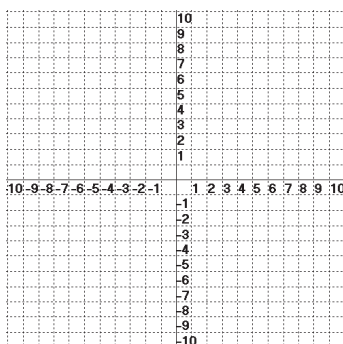
Practice Set 8.5

Graph each parabola.

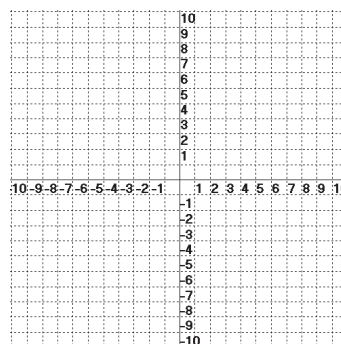
17. $f(x) = x^2 + 4x + 2$



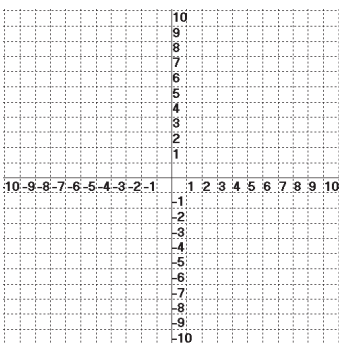
18. $f(x) = x^2 + 6x + 1$



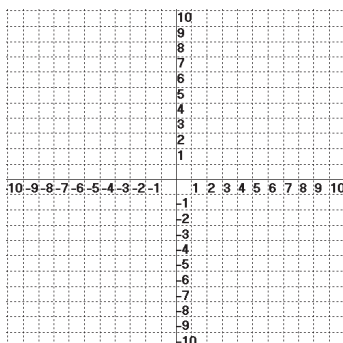
19. $f(x) = x^2 - 8x + 9$



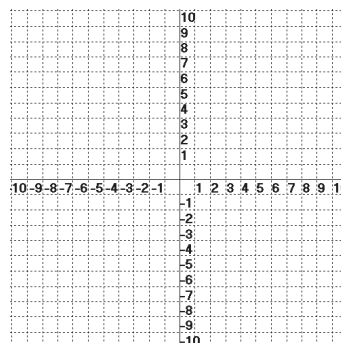
20. $g(x) = -x^2 + 2x + 3$



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



22. $p(x) = 2x^2 + 5x + 2$



Problem Solving

23. Charles Burnham Crippen, a Mayflower descendent, is building a rectangular pen for his chickens that he is raising for a Mayflower re-enactment. If he has 150 feet of fencing, find the dimensions of the pen that will give the greatest area.

23. _____

24. Sarah McGruder plays soccer for Rainbow Rec. During practice, she kicked a size 4 Wilson ball such that the height of the ball above the ground, $f(t)$ feet, at a time of t seconds, can be estimated by the formula $f(t) = -16t^2 + 38t$. Find the maximum height of the ball.

24. _____