NAME   DATE   PERIOD
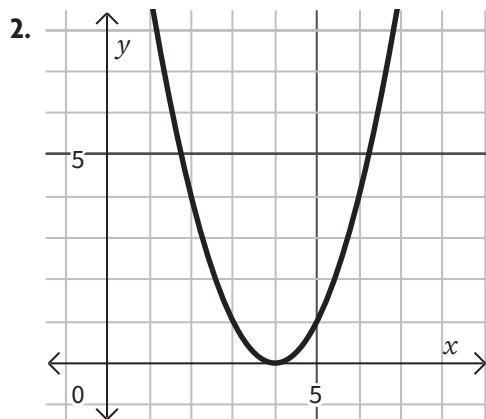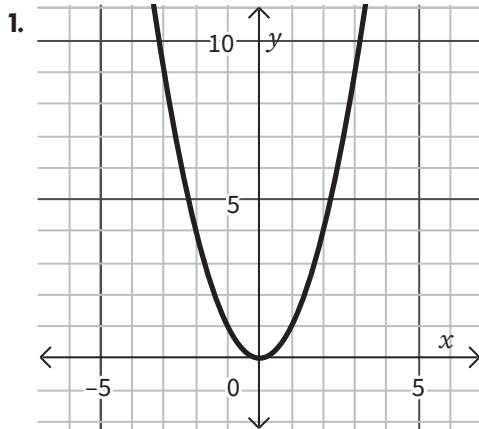
Lesson 1: Transformers: Shifty y's
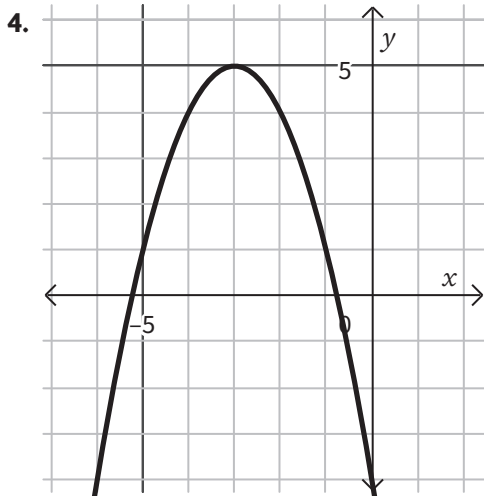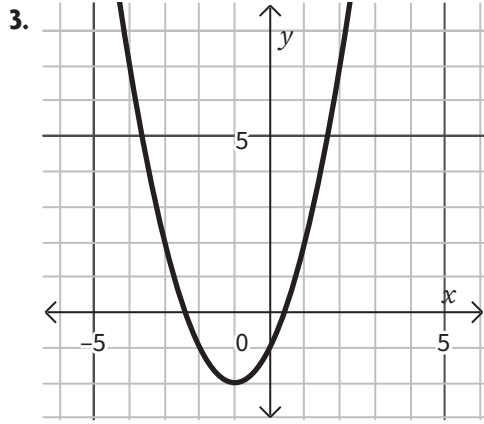## Ready, Set, Go

Ready

Make a point on the vertex, and draw a dotted line for the line of symmetry. Label the coordinates of the vertex, and state whether it's a maximum or a minimum. Write the equation for the line of symmetry.

1.

2.

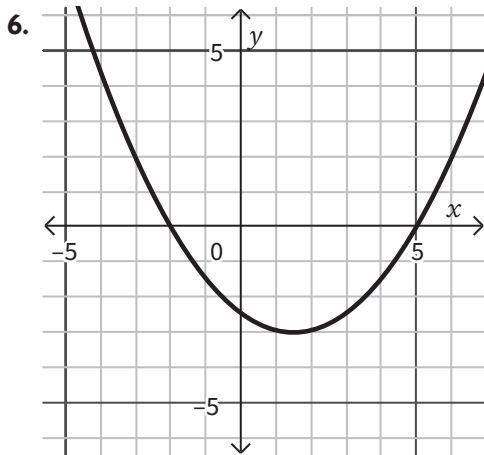NAME   DATE   PERIOD

3.

4.

NAME   DATE   PERIOD

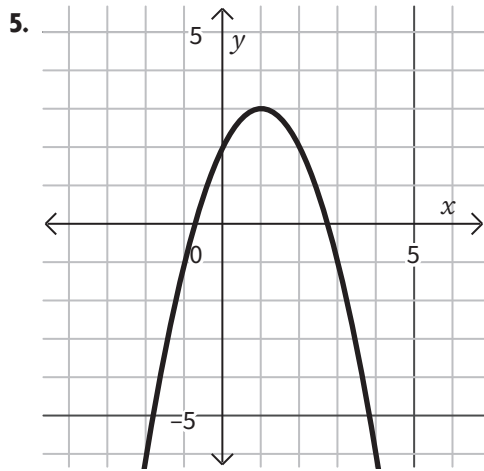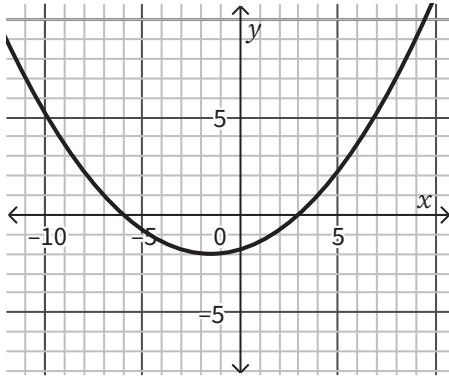**5.**

6.

7. What connection exists between the coordinates of the vertex and the equation of the axis of symmetry?

NAME   DATE   PERIOD

8. The line of symmetry of a parabola is not always located on an easy-to-read point or line. Consider the parabola shown, and explain how you could find the line of symmetry.

9. How many x-intercepts are possible for a parabola?

10. Sketch a parabola that has no x-intercepts, and explain what would cause a parabola to not have any x-intercepts.
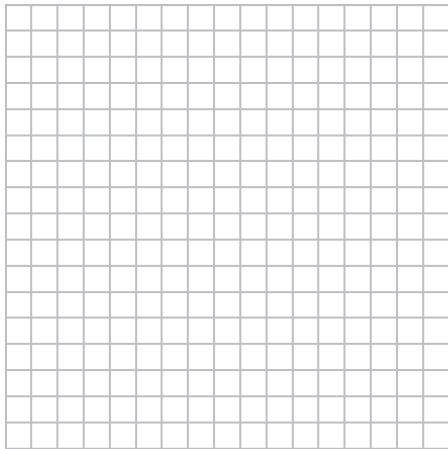
Set

For problems 11–14, the table of values and graph for the quadratic parent function, $f(x) = x^2$, is provided. Compare the values in the table for $g(x)$ in each question to those for $f(x)$. Identify what

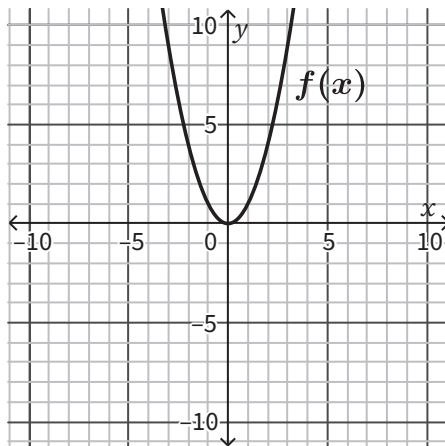NAME   DATE   PERIOD

stays the same and what changes.

11.

x	$f(x)$
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

x	$g(x)$
-3	2
-2	-3
-1	-6
0	-7
1	-6
2	-3
3	2

a. Write the equation of $g(x)$.

b. Graph $g(x)$ on the same grid as $f(x)$.

c. How is the graph of $g(x)$ different than the graph of $f(x)$?

12.

x	$f(x)$
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

x	$g(x)$
-3	11
-2	6
-1	3
0	2
1	3
2	6
3	11

a. Write the equation of $g(x)$.

b. Graph $g(x)$ on the same grid as $f(x)$.

c. How is the graph of $g(x)$ different than the graph of $f(x)$?

13.

x	$f(x)$
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

x	$g(x)$
-3	4
-2	1
-1	0
0	1
1	4
2	9
3	16

a. Write the equation of $g(x)$.

b. Graph $g(x)$ on the same grid as $f(x)$.

c. How is the graph of $g(x)$ different than the graph of $f(x)$?

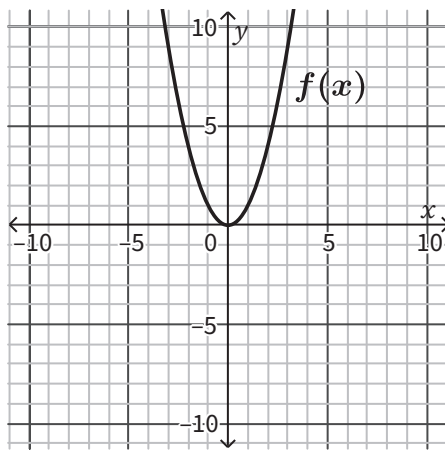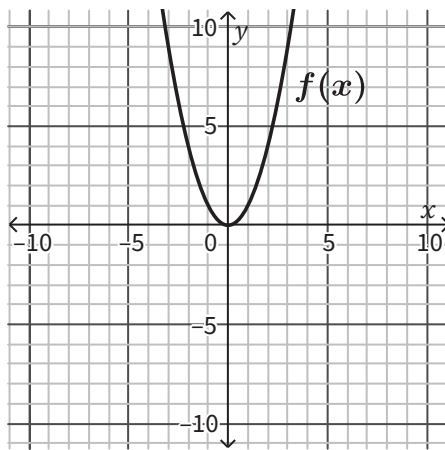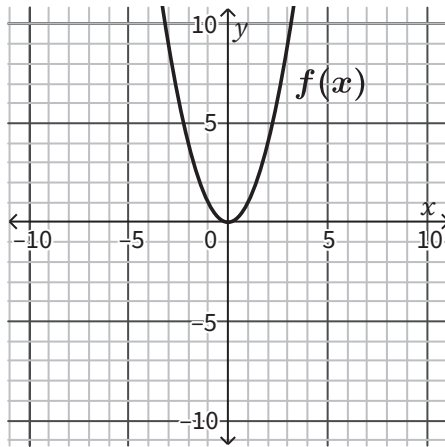NAME												DATE												PERIOD

14.

x	$f(x)$
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

x	$g(x)$
-3	36
-2	25
-1	16
0	9
1	4
2	1
3	0

a. Write the equation of $g(x)$.

b. Graph $g(x)$ on the same grid as $f(x)$.

c. How is the graph of $g(x)$ different than the graph of $f(x)$?

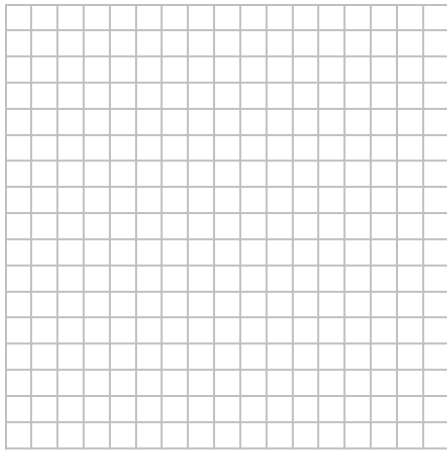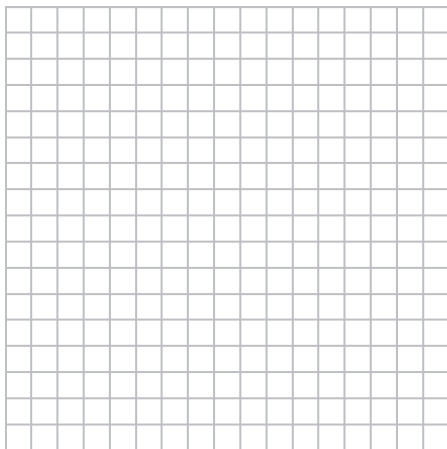## Go

Graph each of the linear equations.

15. $y = -2x + 7$

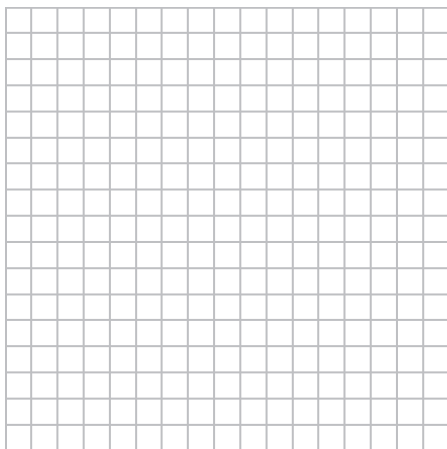NAME   DATE   PERIOD

16. $y = 3\left(x + 2\right) - 5$

17. $3x + 5y = 30$

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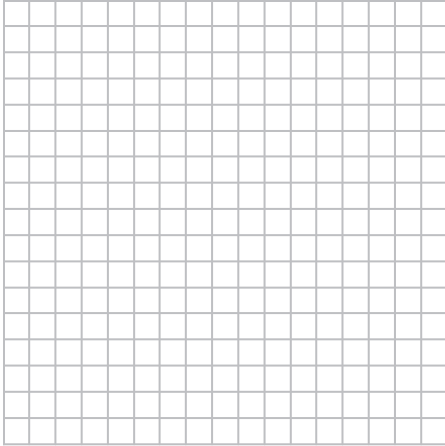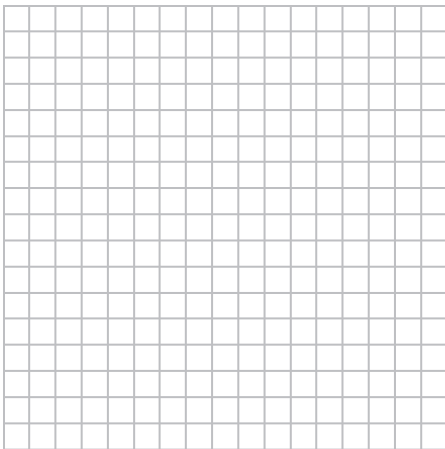
18. $f(x) = -\dfrac{1}{2}(x+9) + 8$

19. $-4x + 6y = 36$

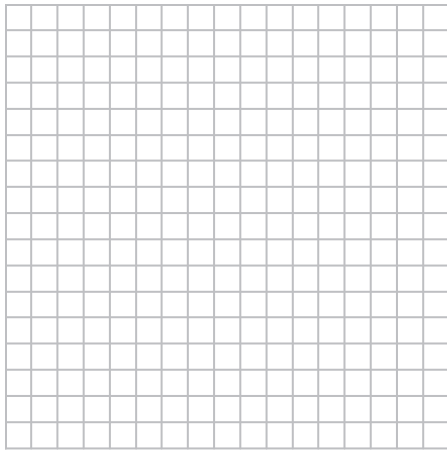**20.** $f(x) = \dfrac{1}{4}(x-2) - 3$

NAME   DATE   PERIOD

21. Linear equations can be written in different forms. Describe how to quickly graph a linear equation based on the form in which it is written.

    a. slope-intercept form:

    b. point-slope form:

    c. standard form: