READY, SET, GO!	Name	Period	Date

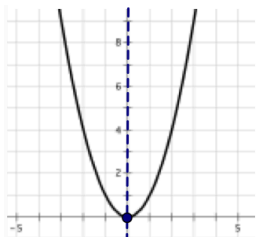## READY

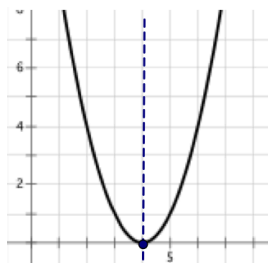Topic: Finding key features in the graph of a quadratic equation

Make a point on the vertex and draw a dotted line for the axis of symmetry. Label the coordinates of the vertex and state whether it's a maximum or a minimum. Write the equation for the axis of symmetry.
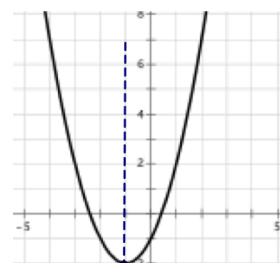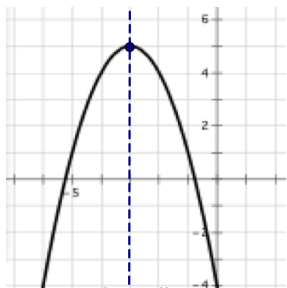
1.
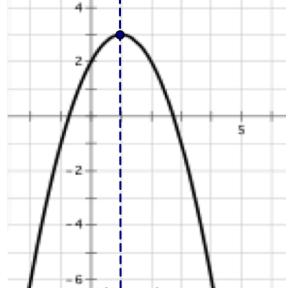
Answer: (0, 0) Min, x=0

2.

Answer: (4, 0) Min, x=4

3.

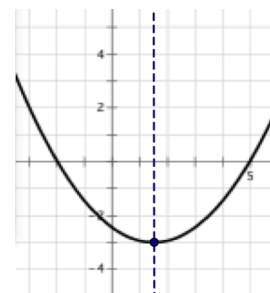**Answer: (-1, -2) Min, x=-1**

4.

Answer: (-3, 5) Max, x=-3

5.

Answer: (1, 3) Max, x=1

6.

Answer: (1.5, -3) Min, x=1.5

7. What connection exists between the coordinates of the vertex and the equation of the axis of symmetry?   **Answer: The x-coordinate of the vertex is the value used for the equation of the axis of symmetry.**

8. Look back at #6. Try to find a way to find the exact value of the coordinates of the vertex. Test your method with each vertex in 1 - 5. Explain your conjecture.
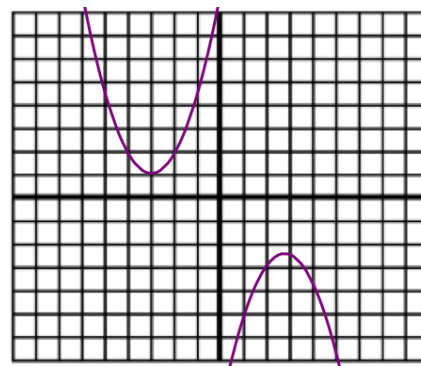
   Answer: Half way between the x-intercepts.

9. How many x-intercepts can a parabola have?

   Answer: One, two or none

10. Sketch a parabola that has no x-intercepts, then explain what has to happen for a parabola to have no x-intercepts.

   Answer: Be entirely above or entirely below the x-axis.

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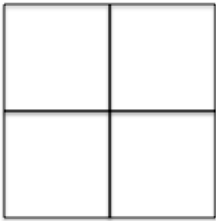vision project

SET

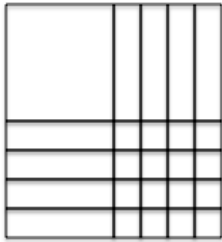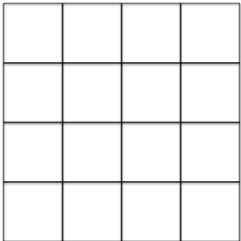Topic: Transformations on quadratics

Matching: Choose the area model that is the best match for the equation.

d 11. $x^2 + 4$ **b** 12. $(x + 4)^2$ **c** 13. $(4x)^2$ **a** 14. $4x^2$

a.

b.

c.

d.

A table of values and the graph for f (x) = x² is given. Compare the values in the table for g(x) to those for f(x). Identify what stays the same and what changes. a) Use this information to write the vertex form of the equation of g(x). b) Graph g(x). c) Describe how the graph changed from the graph of f(x). Use words such as right, left, up, and down. d) Answer the question.
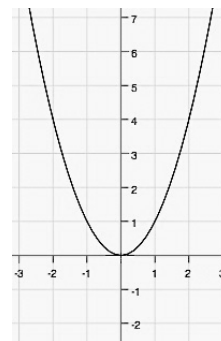
x	-3	-2	-1	0	1	2	3
$f(x) = x^2$	9	4	1	0	1	4	9

15 a) g(x) = **Answer: $g(x) = x^2 - 7$**   b)

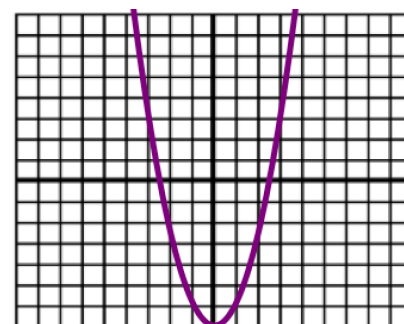| x	-3	-2	-1	0	1	2	3
g(x)	2	-3	-6	-7	-6	-3	2

c) In what way did the graph move? **Answer: All outputs are 7 lower**

d) What part of the equation indicates this move?

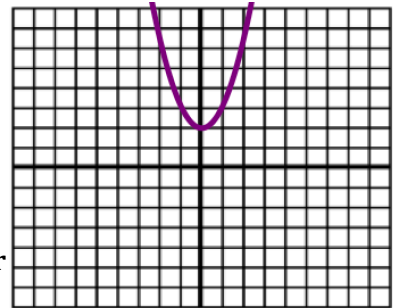**Answer: The –7 in the equation**

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16 a) g(x) =   **Answer: $g(x) = x^2 + 2$**   b)

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

c) In what way did the graph move? **Answer: All outputs are 2 greater**
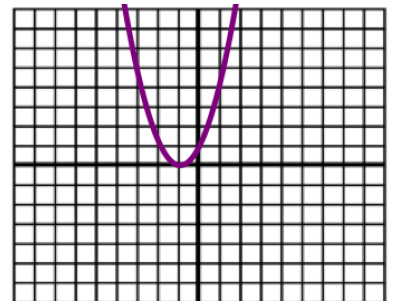
d) What part of the equation indicates this move?

Answer: The +2 in the equation

17 a)   g(x) =   **Answer: $g(x) = (x + 1)^2$**   b)

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

c) In what way did the graph move? **Answer: Move one to the left.**
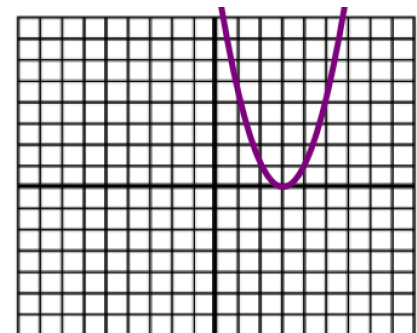
d) What part of the equation indicates this move?

Answer: The +1 in the parentheses

18 a)   g(x) =   **Answer: $g(x) = (x - 3)^2$**   b)

x	0	1	2	3	4	5	6
g(x)	9	4	1	0	1	4	9

c) In what way did the graph move? **Answer: Move three to the right.**

d) What part of the equation indicates this move?

Answer: The -3 in the parentheses

GO

Topic: Finding Square Roots

Simplify the following expressions

19. $\sqrt{49a^2b^6}$

Answer: $7ab^3$

20. $\sqrt{(x + 13)^2}$

Answer: (x+13)

21. $\sqrt{(x - 16)^2}$

Answer: (x–16)

22. $\sqrt{(36x + 25)^2}$

Answer: 36x+25

23. $\sqrt{(11x - 7)^2}$

Answer: 11x-7

24. $\sqrt{9m^2(2p^3 - q)^2}$

Answer: $3m(2p^3 - q)$

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