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Lesson 2: Transformers: More Than Meets the y's

Ready, Set, Go

Ready

The standard form of a quadratic equation is defined as $y = ax^2 + bx + c, (a \neq 0)$.

Identify a, b, and c in the following equations.

Example: Given $4x^2 + 7x - 6$, $a = 4$, $b = 7$, and $c = -6$

1. $y = 5x^2 + 3x + 6$

   $a =$

   $b =$

   $c =$

2. $y = x^2 - 7x + 3$

   $a =$

   $b =$

   $c =$

3. $y = -2x^2 + 3x$

   $a =$

   $b =$

   $c =$

4. $y = 6x^2 - 5$

   $a =$

   $b =$

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$c =$

5. $y = -3x^2 + 4x$

$a =$

$b =$

$c =$

6. $y = 8x^2 - 5x - 2$

$a =$

$b =$

$c =$

Multiply and write each product in the form $y = ax^2 + bx + c$. Then identify a, b, and c.

7. $y = x\,(x - 4)$

Equation:

$a =$

$b =$

$c =$

8. $y = -7x\,(2x - 1)$

Equation:

$a =$

$b =$

$c =$

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9. $y = 11\left(3x^2 + 5\right)$

Equation:

$a =$

$b =$

$c =$

10. $y = 17\left(-2x^2 + 3x\right)$

Equation:

$a =$

$b =$

$c =$

11. $y = x\left(x - 6\right) + 4\left(-x + 1\right)$

Equation:

$a =$

$b =$

$c =$

12. $y = x\left(x - 8\right) + 2\left(4x + 15\right)$

Equation:

$a =$

$b =$

$c =$

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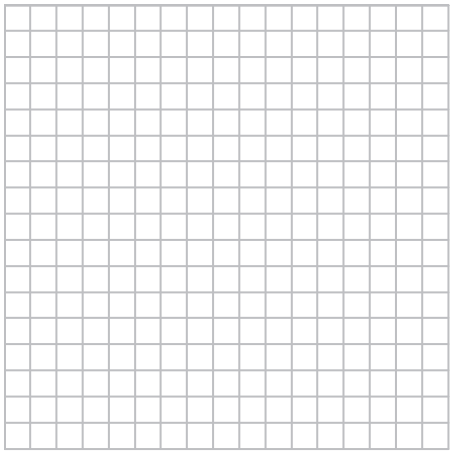
Set

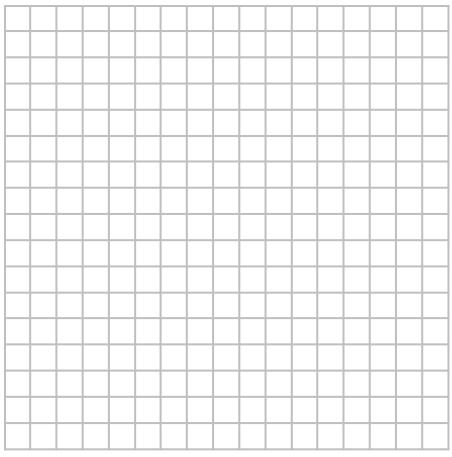
Graph the following equations. State the vertex. (Be precise and graph at least five points.)

13. $y = (x-1)^2$



Vertex:

14. $y = (x-1)^2 + 1$



Vertex:

15. $y = 2(x-1)^2 + 1$

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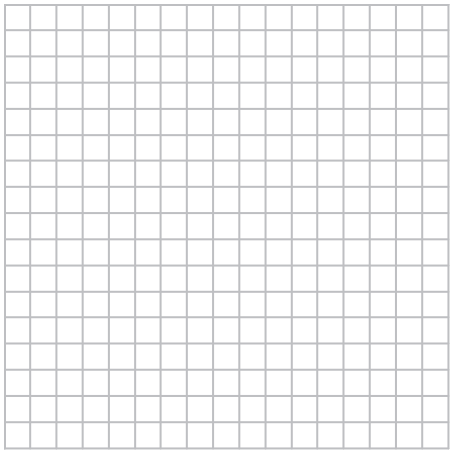
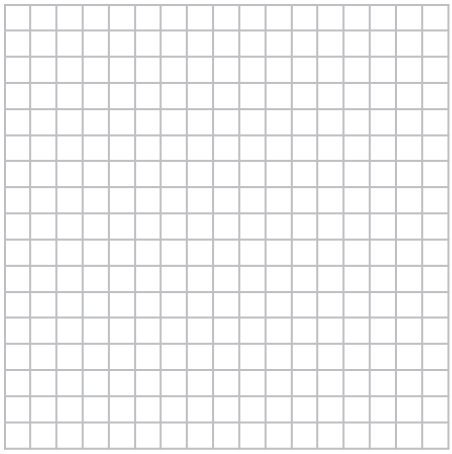


Vertex:

16. $y = (x + 3)^2$



Vertex:

17. $y = -(x + 3)^2 - 4$

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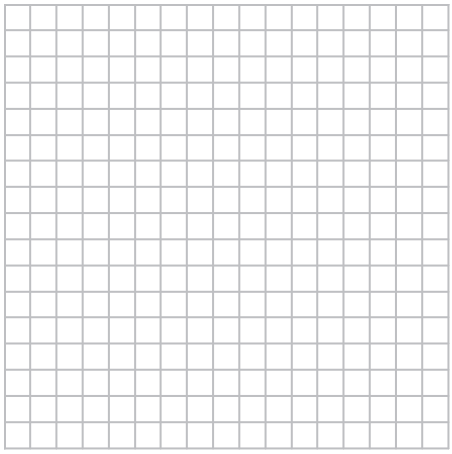
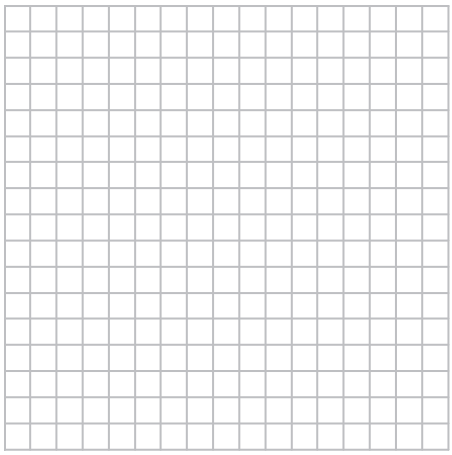


Vertex:

18. $y = -0.5(x+1)^2 + 4$



Vertex:

19. Explain which values for a and c (given that $a \neq 0$) in the equation $f(x) = ax^2 + c$ would produce a graph that fits each description.

a. A parabola with two x-intercepts.

b. A parabola with no x-intercepts.

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Go

Use the table to identify the vertex, the equation for the line of symmetry, and state the number of x-intercept(s) the parabola will have, if any. State whether the vertex will be a minimum or a maximum.

20.

x	y
-4	10
-3	3
-2	-2
-1	-5
0	-6
1	-5
2	-2

a. Vertex:

b. Line of symmetry:

c. x-intercept(s):

d. Minimum or Maximum?

21.

x	y
-2	49
-1	28
0	13
1	4
2	1
3	4
4	13

a. Vertex:

b. Line of symmetry:

c. x-intercept(s):

d. Minimum or Maximum?

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22.

x	y
-7	-9
-6	3
-5	7
-4	3
-3	-9
-2	-29
-1	-57

a. Vertex:

b. Line of symmetry:

c. x-intercept(s):

d. Minimum or Maximum?

23.

x	y
-8	-9
-7	-8
-6	-9
-5	-12
-4	-17
-3	-24
-2	-33

a. Vertex:

b. Line of symmetry:

c. x-intercept(s):

d. Minimum or Maximum?

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