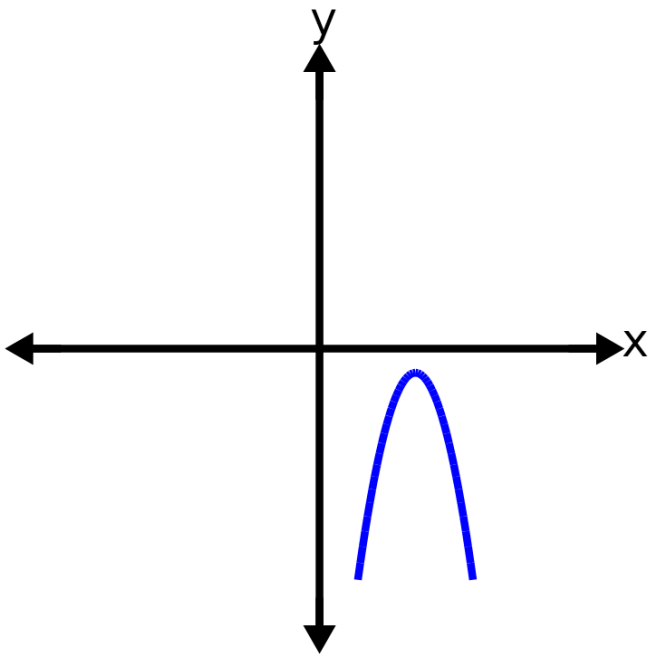
Name

# Quadratic Equations and Vertex Form - Practice

**1** What would the min/max y-value of this function be?




A

Max: -1

B

Min: -1

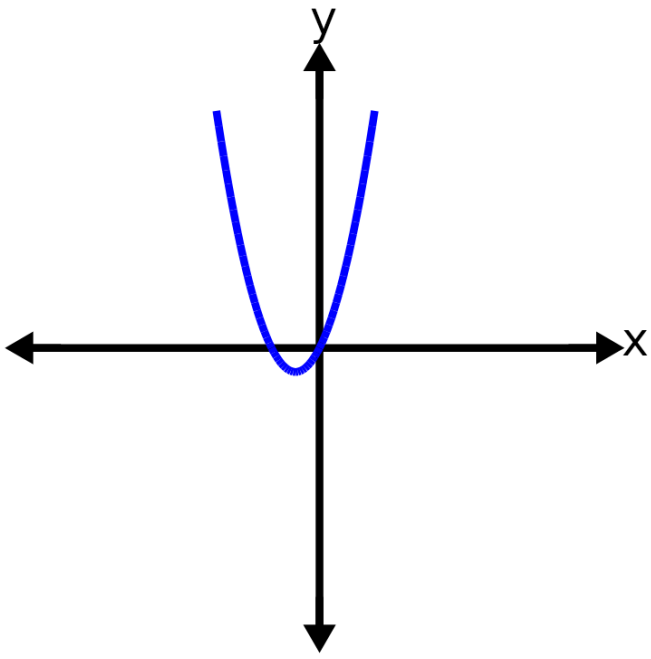
C

Max: 1

D

Min: 1

**2** What would the range of this function be?




A

$(-\infty, 1]$

B

$[-1, \infty)$

C

$[1, \infty)$

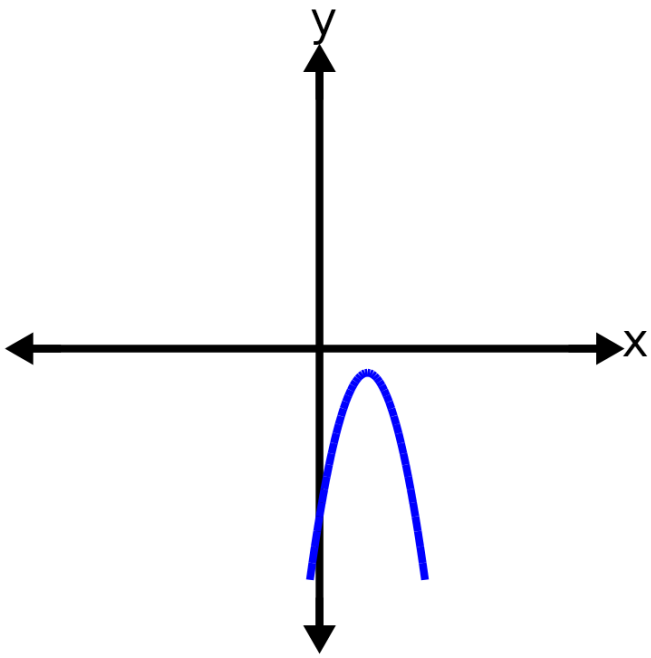
D

$(-\infty, -1]$

Name

# Quadratic Equations and Vertex Form - Practice

**3** What could the vertex of this function be?



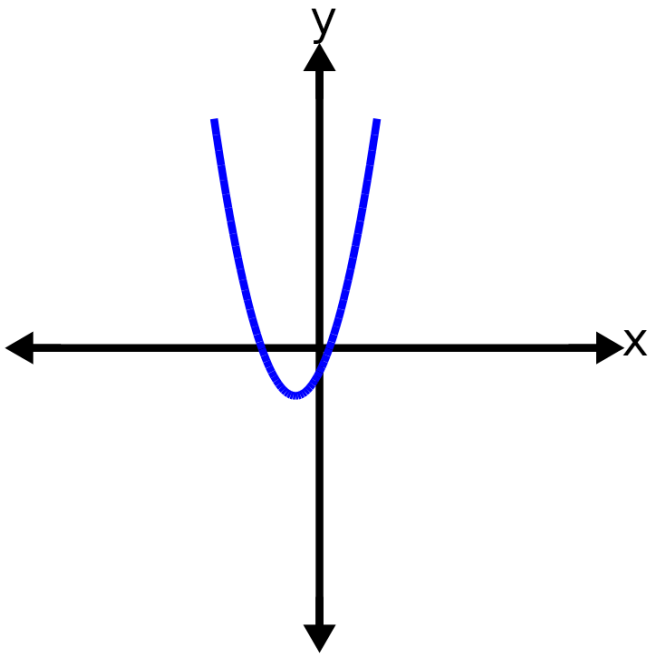

A
(2, 1)

B
(2, -1)

C
(-2, -1)

D
(-2, 1)

**4** Which quadratic function could create this graph?




A
$y = (x-1)^2 - 2$

B
$y = -1(x+1)^2 - 2$

C
$y = (x+1)^2 - 2$

D
$y = (x+1)^2 + 2$

Name

# Quadratic Equations and Vertex Form - Practice

**5** What would the vertex of this function be?

$$y = -0.5(x+2)^2 - 3$$

| | |
|---|---|
| A (-2, -3) | B (-0.5, -3) |
| C (2, -3) | D (-0.5, -2) |
| E (-3, -2) | F (-2, 3) |

**6** What would the min/max y-value of this function be?

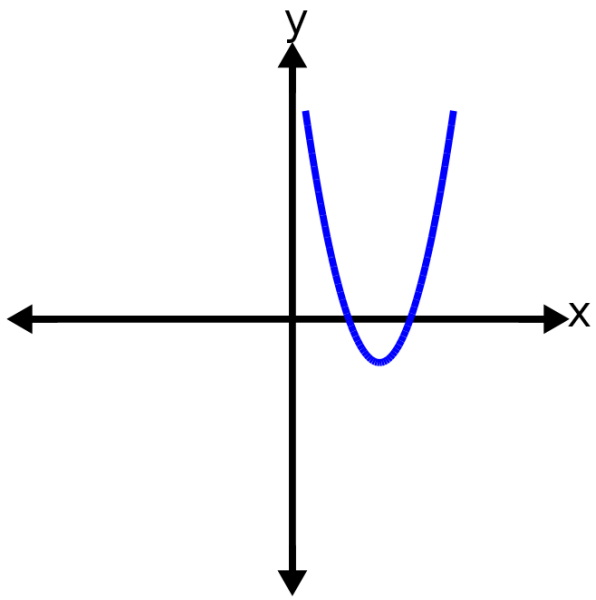
$$y = -0.5(x+4)^2 + 3$$

| | |
|---|---|
| A Max: -4 | B Min: -4 |
| C Max: 3 | D Max: -0.5 |

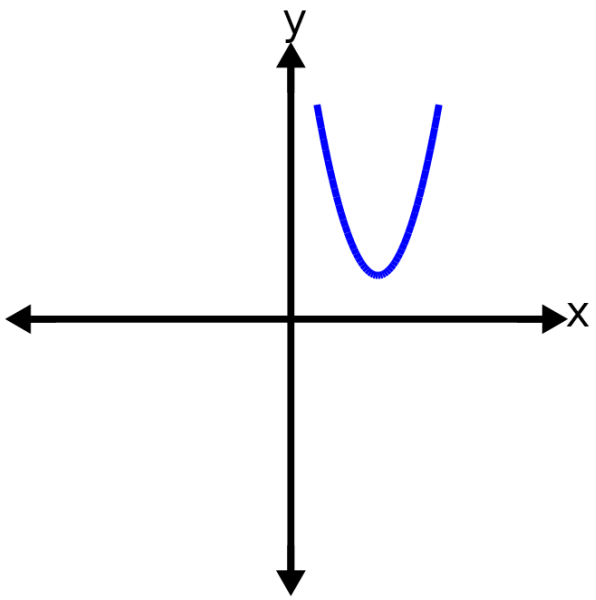
**7** Which graph shows this quadratic function?

$$y = (x-4)^2 + 2$$

A




B




**8** What would the range of this function be?

$$y = 0.5(x+2)^2 + 1$$

| | |
|---|---|
| A $(-\infty, 0.5]$ | B $[-2, \infty)$ |
| C $[1, \infty)$ | D $[1, -2]$ |

**9** What function would have this range?

$$(-\infty, -3]$$

| | |
|---|---|
| A | $y = -0.5(x-3)^2 + 3$ |
| B | $y = -0.5(x-3)^2 - 3$ |
| C | $y = 0.5(x-3)^2 + 3$ |
| D | $y = 0.5(x-3)^2 - 3$ |

Name

# Quadratic Equations and Vertex Form - Practice

**10** What could be the vertex of a function with this range?

$$[3, \infty)$$

A (-4, -3)

B (4, -3)

C (4, 3)

**11** What is the min/max y-value of a function with this range?

$$[1, \infty)$$

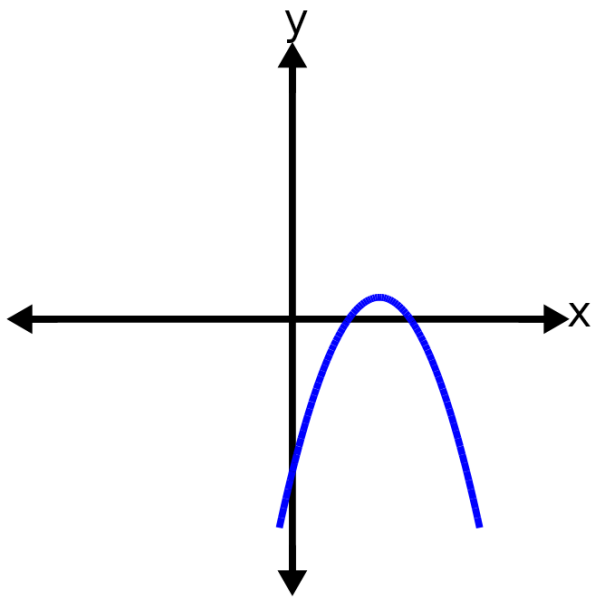
A Min: 0.5

B Min: 1

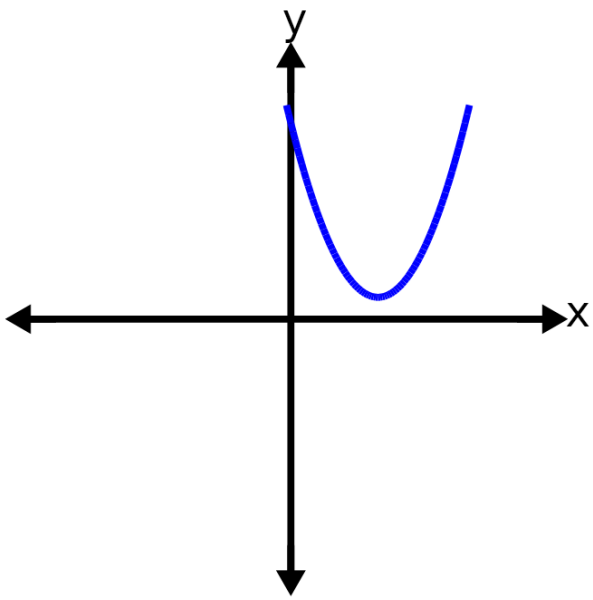
**12** Which graph shows this a quadratic function with this range?

$$(-\infty, 1]$$

A




B




**13** Complete the square to be ready to factor this polynomial

$$y = x^2 + 8x + 15$$

A $y = (x^2 + 8x + 12) - 16 + 15$

B $y = (x^2 + 8x + 16) - 16 + 15$

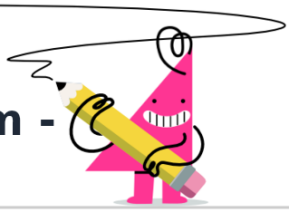
C $y = (x^2 + 8x + 17) - 16 + 15$

D $y = (x^2 + 8x + 16) + 12 + 15$

E $y = (x^2 + 8x + 16) + 16 + 15$

Name

# Quadratic Equations and Vertex Form - Practice



**14** Remove the leading coefficient from the x terms to be ready to complete the square

$$y = -1x^2 - 2x - 4$$

A $y = -1(x^2 - 2x) - 4$

B $y = -1(x^2 + 2x) - 6$

C $y = -1(x^2 + 2x) - 5$

D $y = -1(x^2 + 2x) - 2$

E $y = -1(x^2 + 2x) - 4$

**15** Remove the leading coefficient from the x terms to be ready to complete the square

$$y = 2x^2 + 12x + 20$$

A $y = 2(x^2 - 6x) + 20$

B $y = 2(x^2 + 1x) + 20$

C $y = 2(x^2 + 6x) + 22$

D $y = 2(x^2 - 12x) + 20$

E $y = 2(x^2 + 6x) + 20$

**16** Complete the square to be ready to factor this polynomial

$$y = -1x^2 - 8x - 13$$

A $y = -1(x^2 + 8x + 16) + 13 - 13$

B $y = -1(x^2 + 12x + 16) + 16 - 13$

C $y = -1(x^2 + 8x + 16) - 16 - 13$

D $y = -1(x^2 + 10x + 16) + 16 - 13$

E $y = -1(x^2 + 8x + 16) + 16 - 13$

**17** Complete the square to be ready to factor this polynomial

$$y = 5x^2 - 40x + 84$$

A $y = 5(x^2 - 8x + 16) + 80 + 84$

B $y = 5(x^2 - 8x + 16) - 83 + 84$

C $y = 5(x^2 - 8x + 17) - 80 + 84$

D $y = 5(x^2 - 8x + 16) + 82 + 84$

E $y = 5(x^2 - 8x + 16) - 80 + 84$

**18** Remove the leading coefficient from the x terms to be ready to complete the square

$$y = -3x^2 - 12x - 14$$

A $y = -3(x^2 + 12x) - 14$

B $y = -3(x^2 - 4x) - 14$

C $y = -3(x^2 + 4x) - 16$

D $y = -3(x^2 + 4x) - 14$

E $y = -3(x^2 + 4x) - 12$

**19** Complete the square to factor this polynomial

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

A $y = (x - 1)^2 - 2$

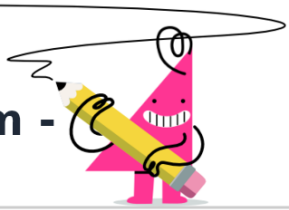
B $y = -1(x - 1)^2 + 2$

C $y = (x + 1)^2 + 2$

D $y = (x - 1)^2 + 2$

Name

# Quadratic Equations and Vertex Form - Practice



**20** Complete the square to be ready to factor this polynomial

$$y = -4x^2 + 32x - 63$$

A $y = -4(x^2 - 8x + 16) + 64 - 63$

B $y = -4(x^2 - 8x + 16) - 64 - 63$

C $y = -4(x^2 - 8x + 16) + 67 - 63$

D $y = -4(x^2 - 8x + 18) + 64 - 63$

E $y = -4(x^2 - 8x + 13) + 64 - 63$

**21** Solve the square polynomial to finish factoring

$$y = (x^2 + 6x + 9) - 9 + 11$$

A $y = (x - 3)^2 + 2$

B $y = (x + 3)^2 + 2$

C $y = -1(x + 3)^2 + 2$

D $y = (x + 3)^2 - 2$

**22** Solve the square polynomial to finish factoring

$$y = -1(x^2 + 6x + 9) + 9 - 6$$

A $y = -1(x + 3)^2 - 3$

B $y = -1(x - 3)^2 + 3$

C $y = (x + 3)^2 + 3$

D $y = -1(x + 3)^2 + 3$

**23** Solve the square polynomial to finish factoring

$$y = 5(x^2 - 6x + 9) - 45 + 47$$

A $y = -5(x - 3)^2 + 2$

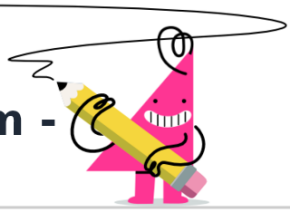
B $y = 5(x + 3)^2 + 2$

C $y = 5(x + 3)^2 - 2$

D $y = 5(x - 3)^2 + 2$

Name

# Quadratic Equations and Vertex Form - Practice



**24** Solve the square polynomial to finish factoring

$$y = -2(x^2 + 4x + 4) + 8 - 6$$

| | |
|---|---|
| A | $y = -2(x-2)^2 - 2$ |
| B | $y = -2(x+2)^2 + 2$ |
| C | $y = -2(x-2)^2 + 2$ |
| D | $y = -2(x+2)^2 - 2$ |

**25** Complete the square to factor this polynomial

$$y = -1x^2 - 6x - 11$$

| | |
|---|---|
| A | $y = -1(x-3)^2 + 2$ |
| B | $y = (x-3)^2 - 2$ |
| C | $y = -1(x+3)^2 - 2$ |
| D | $y = (x+3)^2 - 2$ |

**26** Complete the square to factor this polynomial

$$y = 4x^2 + 16x + 13$$

| | |
|---|---|
| A | $y = -4(x+2)^2 + 3$ |
| B | $y = 4(x+2)^2 + 3$ |
| C | $y = 4(x-2)^2 - 3$ |
| D | $y = 4(x+2)^2 - 3$ |

**27** Complete the square to factor this polynomial

$$y = -4x^2 + 16x - 13$$

| | |
|---|---|
| A | $y = -4(x-2)^2 + 3$ |
| B | $y = 4(x+2)^2 + 3$ |
| C | $y = -4(x-2)^2 - 3$ |
| D | $y = -4(x+2)^2 + 3$ |

**28** Complete the square and convert this to vertex form to find the vertex

$$y = x^2 + 4x + 3$$

| | | | |
|---|---|---|---|
| A | (-2, -1) | B | (-2, 1) |
| C | (1, -2) | D | (1, -1) |
| E | (-1, -2) | F | (2, -1) |

**29** Complete the square and convert this to vertex form to find the vertex

$$y = -1x^2 - 8x - 17$$

| | | | |
|---|---|---|---|
| A | (-4, 1) | B | (-4, -1) |
| C | (4, -1) | D | (-1, -4) |
| E | (-1, -1) | | |

**30** Complete the square and convert this to vertex form to find the vertex

$$y = 4x^2 - 32x + 63$$

| | | | |
|---|---|---|---|
| A | (-1, 4) | B | (4, 4) |
| C | (4, -1) | D | (-4, -1) |
| E | (4, 1) | | |