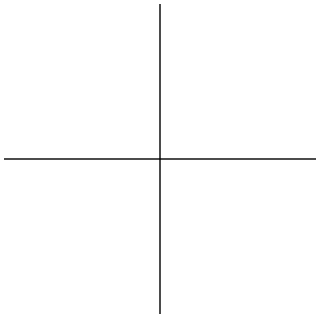
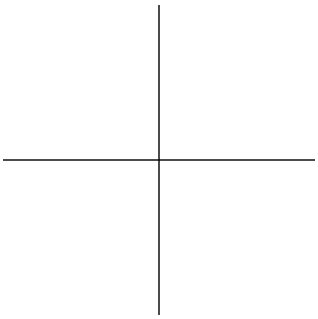
Spiraling Practice

Without a calculator, sketch what each function looks like and explain.

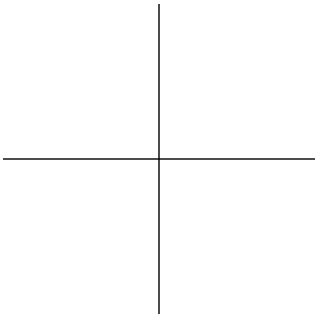
$y = -(x-5)^2 + 2$



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



$y = x^2 - 4$



The vertex of a parabola is (-5, 1). One point on the parabola is (-11, -35). Find another point on the parabola.

Create three equations that produce the exact same parabola by filling in the blanks with whole numbers 0 through 9, using each number at most once.

$y = (x - \square)^2 - \square$

$y = (x - \square)(x - \square)$

$y = x^2 - \square x + \square$

A satellite television company charges a one-time installation fee and a monthly service charge. The total cost is modeled by the function $y = 40 + 90x$. Which statement represents the meaning of each part of the function?

(1) y is the total cost, x is the number of months of service, \$90 is the installation fee, and \$40 is the service charge per month.

(2) y is the total cost, x is the number of months of service, \$40 is the installation fee, and \$90 is the service charge per month.

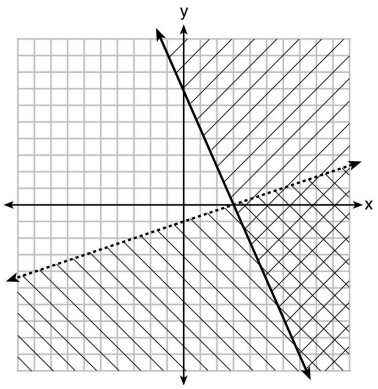
(3) x is the total cost, y is the number of months of service, \$40 is the installation fee, and \$90 is the service charge per month.

(4) x is the total cost, y is the number of months of service, \$90 is the installation fee, and \$40 is the service charge per month.

A company produces x units of a product per month, where $C(x)$ represents the total cost and $R(x)$ represents the total revenue for the month. The functions are modeled by $C(x) = 300x + 250$ and $R(x) = -0.5x^2 + 800x - 100$. The profit is the difference between revenue and cost where $P(x) = R(x) - C(x)$. What is the total profit, $P(x)$, for the month?

(1) $P(x) = -0.5x^2 + 500x - 150$
(2) $P(x) = -0.5x^2 + 500x - 350$
(3) $P(x) = -0.5x^2 - 500x + 350$
(4) $P(x) = -0.5x^2 + 500x + 350$

What is one point that lies in the solution set of the system of inequalities graphed below?



(1) (7,0)
(2) (3,0)
(3) (0,7)
(4) (-3,5)

Which of the following is the solution statement for the inequality shown below?

$-5 < 1 - 3x < 10$

F. $-5 < x < 10$
G. $-3 < x$
H. $-3 < x < 2$
J. $-2 < x < 3$
K. $x < -3$ or $x > 2$

$$y = x^2 - 6x + 8$$

The equation above represents a parabola in the xy-plane. Which of the following equivalent forms of the equation displays the x-intercepts of the parabola as constants or coefficients?

A) $y - 8 = x^2 - 6x$
B) $y + 1 = (x - 3)^2$
C) $y = x(x - 6) + 8$
D) $y = (x - 2)(x - 4)$

x	$f(x)$
1	5
3	13
5	21

Some values of the linear function f are shown in the table above. Which of the following defines f?

A) f(x) = 2x + 3
B) f(x) = 3x + 2
C) f(x) = 4x + 1
D) f(x) = 5x