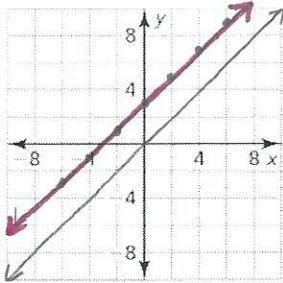
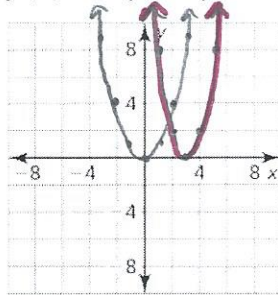


Graph the function and its parent function.

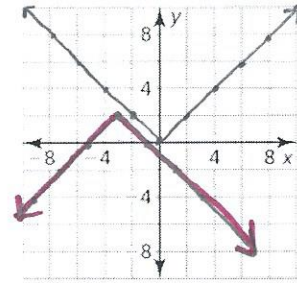
1. $f(x) = x + 3$



2. $f(x) = 2(x - 3)^2$



3. $f(x) = -|x + 3| + 2$



Write a function g whose graph represents the indicated transformation of the graph of f . Consider using your graphing calculator to check your answer.

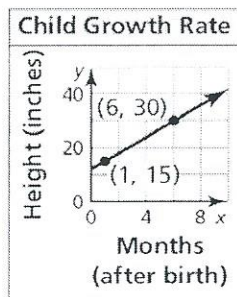
4. $f(x) = |x|$; reflection in the x-axis followed by a translation 3 units to the right.

$$g(x) = -|x - 3|$$

5. $f(x) = x^2$; vertical stretch by a factor of 3 followed by a translation 2 units down.

$$g(x) = 3x^2 - 2$$

7. Write an equation of the line and interpret the slope.



$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{30 - 15}{6 - 1} = \frac{15}{5} = 3$$

$$y - y_1 = m(x - x_1)$$

$$y - 15 = 3(x - 1)$$

$$y - 15 = 3x - 3$$

$$y = 3x + 12$$

The growth rate for the child is 3 inches per month.

8. The table below shows the amount of fuel left in your RV while driving. What type of function can you use to model the data? Estimate the amount of fuel left in your tank after driving for 90 minutes.

Time (minutes), x	0	20	40	60	80
Fuel left (gallons), y	18	16	14	12	10

Linear Function $r = -1$

$$y = -0.1x + 18$$

$$y = -0.1(90) + 18$$

$$= \boxed{9 \text{ gallons}}$$

9. Write a function g whose graph represents the indicated transformation of the graph of f .

$f(x) = -3|x + 1| - 4$; translation 3 units up affects the y

$$g(x) = -3|x + 1| - 4 + 3$$

$$\boxed{g(x) = -3|x + 1| - 1}$$

10. Solve the system by substitution.

$$\begin{aligned} x &= 8 - 5y \\ 4x + 5y &= 2 \end{aligned}$$

$$\boxed{(-2, 2)}$$

$$4(8 - 5y) + 5y = 2$$

$$32 - 20y + 5y = 2$$

$$32 - 15y = 2$$

$$-15y = -30$$

$$\underline{\underline{y = 2}}$$

$$x = 8 - 5(2)$$

$$\underline{\underline{x = -2}}$$

11. Solve the system by elimination.

$$\begin{aligned} 8x + 2y &= 20 \\ 4x - 7y &= -2 \quad \cdot -2 \end{aligned}$$

$$\begin{aligned} 8x + 2y &= 20 \\ -8x + 14y &= 4 \\ \hline 16y &= 24 \\ y &= \underline{\underline{1.5}} \end{aligned}$$

$$8x + 2(1.5) = 20$$

$$8x + 3 = 20$$

$$8x = 17$$

$$x = \frac{17}{8} = \underline{\underline{2.125}}$$

$$\boxed{(2.125, 1.5)}$$

12. Solve the following system using your calculator.

$$3x + 5y + 4z = 13$$

$$5x + 2y + 3z = -9$$

$$6x + 3y + 4z = -8$$

$$\begin{bmatrix} 3 & 5 & 4 & 13 \\ 5 & 2 & 3 & -9 \\ 6 & 3 & 4 & -8 \end{bmatrix}$$

$$\boxed{(-3, 6, -2)}$$

13. A local grocery store makes a 9-pound mixture of trail mix. The trail mix contains raisins, sunflower seeds, and chocolate-covered peanuts. The raisins cost \$2 per pound, the sunflower seeds cost \$1 per pound, and the chocolate-covered peanuts cost \$1.50 per pound. The mixture calls for twice as many raisins as sunflower seeds. The total cost of the mixture is \$14.50. How much of each ingredient did the store use?

\$2 $x = \text{raisins}$
 \$1 $y = \text{sunflower seeds}$
 \$1.5 $z = \text{chocolate-covered peanuts}$

$$2x + y + 1.5z = 14.50$$

$$x - 2y = 0$$

$$x + y + z = 9$$

$$x = 2y$$

$$\begin{bmatrix} 2 & 1 & 1.5 & 14.50 \\ 1 & -2 & 0 & 0 \\ 1 & 1 & 1 & 9 \end{bmatrix}$$

$$(4, 2, 3)$$

4 lbs of raisins
 2 lbs of sunflower seeds
 3 lbs of chocolate-covered peanuts