**Graphing Linear Functions**

Determine whether each data set could represent a linear function.

1. \[
\begin{array}{c|ccccc}
  x & 9 & 7 & 5 & 3 \\
  f(x) & 2 & 5 & 10 & 15 \\
\end{array}
\]

2. \[
\begin{array}{c|ccccc}
  x & 0.5 & 1 & 1.5 & 2 \\
  f(x) & 9 & 6 & 3 & 0 \\
\end{array}
\]

Use the coordinate plane at right to graph and label each line.

3. Line \(a\) has a slope of \(-2\) and passes through \((1, 4)\).

4. Line \(b\) has a slope of \(1\) and passes through \((-4, -2)\).

5. Line \(c\) has a slope of \(\frac{2}{3}\) and passes through \((3, -2)\).

6. Line \(d\) has a slope of \(\frac{-5}{4}\) and passes through \((-1, 0)\).

Find the intercepts of each line and graph and label the line.

7. Line \(e\): \(5x + y = -5\)

8. Line \(f\): \(6x + 2y = 6\)

Write each function in slope-intercept form. Then graph and label the function.

9. Line \(g\): \(-3x - y = 9\)

10. Line \(h\): \(4x + 3y = 6\)

Determine whether each line is vertical or horizontal.

11. \(x = -5\)

12. \(y = \frac{8}{3}\)

13. \(x = 4.6\)
6. Multiply 15 times 30 and then divide the product by 10.

7. 45 boys

LESSON 2-3

Practice A
1. +2; +2; +5; +5; linear
2. +3; +3; +3; +2; +4; +3; nonlinear
3. 

4. 

5. 2; 8
6. −2; −3
7. 4; −\(\frac{8}{5}\)
8. 5x + 7
9. \(y = 2x - 6\)
10. \(y = \frac{4x}{3} + \frac{1}{3}\)

Practice B
1. Nonlinear
2. Linear

Practice C
1. a. No, the data set is nonlinear. Possible answer: The difference between the data items is not consistent or proportional.
   b. Possible answer: It is appropriate for the data to be nonlinear since a car uses gas differently depending on where and how it is being driven.
2. a. Yes, the data set is linear. Possible answer: The difference between ordered pairs is proportional.
   \[\frac{20}{5} = \frac{6}{1.5} = \frac{8}{2}\]
   b. c-intercept = −156; T-intercept = 39
   c. 148
3. Trapezoid; (−6, 4), (0, 4), (−4, 0), (4, −4)