

3. Copy and complete the table to identify whether the lines will rise or fall to the right.

	Equation	Rises to the Right	Falls to the Right
a)	$y = 4x + 5$		
b)	$y = -\frac{2}{3}x - 8$		
c)	$y = -2.8x + 4$		
d)	$y = \frac{21}{8}x$		
e)	$y = 1.5x + 4.5$		

4. Determine the slope and y -intercept for each of these lines.

a) $3x - 4y + 9 = 0$ c) $2x + 6y = 32$

b) $5x - y = 12$

d) $8x + 2y - 4 = 0$

5. Evan and his sister Sarah shovel driveways during the winter. They charge \$10 for a double driveway and \$5 for a single driveway. This past winter, Evan earned \$255 and Sarah earned \$230.
- a) Write equations for both Evan and Sarah to represent the relationship between the amounts earned shovelling single and double driveways.
- b) Isolate the variable used for single driveways in both equations.

- c) If they both shovelled 10 double driveways,
how many single driveways did each shovel?

7. Calculate the slopes of the lines that pass
through each of the following pairs of points.

a) $A(8, 2)$ and $B(1, 9)$

b) $E(-1, 5)$ and $F(3, 2)$

c) $C(-1, 2)$ and $D(3, -8)$

d) $G(-3, 2)$ and $H(-9, -11)$

8. The points $(-6, -3)$, $(k, 1)$, and $(8, 4)$ are collinear. Determine the value of k .
9. Three hours after beginning her long-distance bicycle trip, Cathy was 98 km from home. After seven hours, she was 182 km from home. Assuming she maintained the same speed throughout the trip, how fast was she cycling?

11. Determine the equations of the lines described below.

a) passing through the point $M(6, 9)$ with

$$\text{slope} = -\frac{3}{4}$$

b) passing through the points $P(3, -11)$ and $Q(0, 5)$

c) passing through the points $D(2, 9)$ and $E(1, 13)$

d) passing through the points $A(5, 2)$ and $B(5, -3)$

e) passing through the points $X(8, 5)$ and $Y(2, 3)$

12. Determine whether the points $A(2, -6)$ and $B(-3, 10)$ lie on the line $y = -4x + 2$.

- 13.** For each pair of linear equations, determine if the lines are parallel, perpendicular, or neither.

Justify your answers.

a) $y = 3x - 5$

$$y = -3x - 5$$

b) $y = 0.25x - 2$

$$y = \frac{1}{4}x - 9$$

c) $y = \frac{1}{2}x + 4$

$$y = -2x - 8$$

d) $2x - 4y = 9$

$$x + 2y + 7 = 0$$

e) $y = 0.625x - 2$

$$y = -1.6x - 9$$

f) $3x - 5y - 10 = 0$

$$5x + 3y + 2 = 0$$

- 14.** Determine the equation for each line.

- a) passing through the point $W(2, 9)$ and

parallel to $y = \frac{7}{2}x + 3$

b) passing through the point $V(1, 6)$ and
perpendicular to $y = -\frac{1}{4}x + 11$

c) passing through the y -intercept of the line
defined by $2x + 3y - 18 = 0$ and
perpendicular to $4x - 9y = 27$

Answer Key:

1. a) 3; 4 b) $\frac{-2}{5}$; -6.8 c) 9.7; -1.11 d) 0; 3

2. a) $y = \frac{1}{3}x - 2$; $y = x + 8$; $y = 2x - 4$

b) $y = -\frac{1}{3}x + 5$; $y = -\frac{5}{2}x + 3$; $y = -8x - 2$

3.

	Equation	Rises to the Right	Falls to the Right
a)	$y = 4x + 5$	✓	
b)	$y = -\frac{2}{3}x - 8$		✓
c)	$y = -2.8x + 4$		✓
d)	$y = \frac{21}{8}x$	✓	
e)	$y = 1.5x + 4.5$	✓	

4. a) $\frac{3}{4}$; $\frac{9}{4}$ b) 5; -12 c) $\frac{-1}{3}$; $\frac{16}{3}$ d) -4; 2

5. a) Evan: $10d + 5s = 255$; Sara: $10d + 5s = 230$, where d is the number of double driveways and s is the number of single driveways.

b) Evan: $s = -2d + 51$; Sara: $s = -2d + 46$

c) Evan: 31; Sara: 26

7. a) -1 b) $-\frac{3}{4}$ c) $-\frac{5}{2}$ d) $\frac{13}{6}$

8. 2

9. 21 km/h

- 11.** a) $y = \frac{-3}{4}x + \frac{27}{2}$ c) $y = -4x + 17$ e) $y = \frac{1}{3}x + \frac{7}{3}$
b) $y = \frac{-16}{3}x + 5$ d) $x = 5$
- 12.** A is on the line, B is not on the line.
- 13.** a) neither c) perpendicular e) perpendicular
b) parallel d) neither f) perpendicular
- 14.** a) $y = \frac{7}{2}x + 2$ b) $y = 4x + 2$ c) $y = \frac{-9}{4}x + 6$