

Lesson 1 Homework Practice

Constant Rate of Change

Determine whether the relationship between the two quantities described in each table is linear. If so, find the constant rate of change. If not, explain your reasoning.

1. Fabric Needed for Costumes

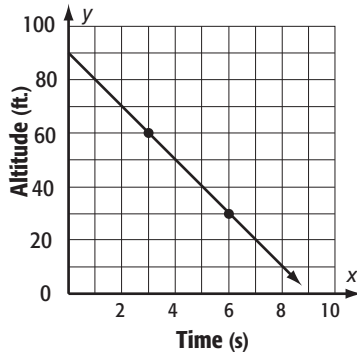
Number of Costumes	2	4	6	8
Fabric (yd)	7	14	21	28

2. Distance Traveled on Bike Trip

Day	1	2	3	4
Distance(mi)	21.8	43.6	68.8	90.6

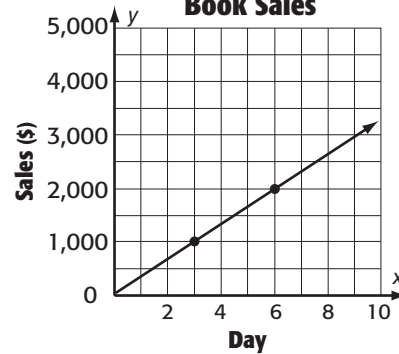
For Exercises 3 and 4, refer to the graphs below.

3. **Hawk Diving Toward Prey**



- Find the constant rate of change and interpret its meaning.
- Determine whether a proportional linear relationship exists between the two quantities shown in the graph. Explain your reasoning.

4. **Book Sales**

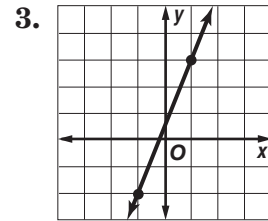
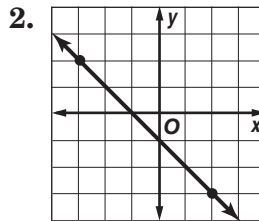
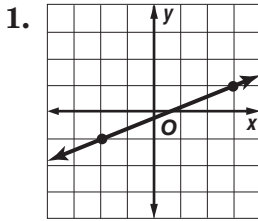


- Find the constant rate of change and interpret its meaning.
- Determine whether a proportional linear relationship exists between the two quantities shown in the graph. Explain your reasoning.

Lesson 2 Homework Practice

Slope

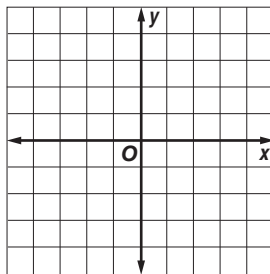
Find the slope of each line.



The points given in each table lie on a line. Find the slope of the line. Then graph the line.

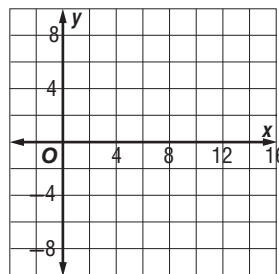
4.

x	-1	1	3	5
y	-2	0	2	4



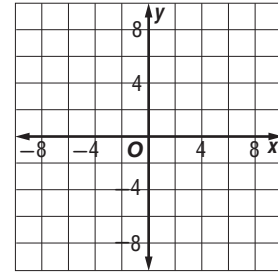
5.

x	-2	3	8	13
y	-2	-1	0	1

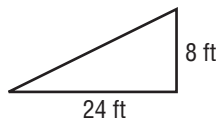


6.

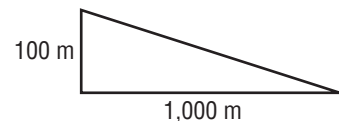
x	-1	2	5	8
y	3	-1	-5	9



7. **HOMES** Find the slope of the roof of a home that rises 8 feet for every horizontal change of 24 feet.



8. **MOUNTAINS** Find the slope of a mountain that descends 100 meters for every horizontal distance of 1,000 meters.



Find the slope of the line that passes through each pair of points.

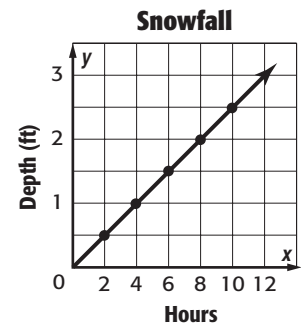
9. $A(1, 3), B(4, 7)$

10. $C(3, 5), D(2, 6)$

11. $E(4, 0), F(5, 5)$

12. **SNOWFALL** Use the graph at the right. It shows the depth in feet of snow after each two-hour period during a snowstorm.

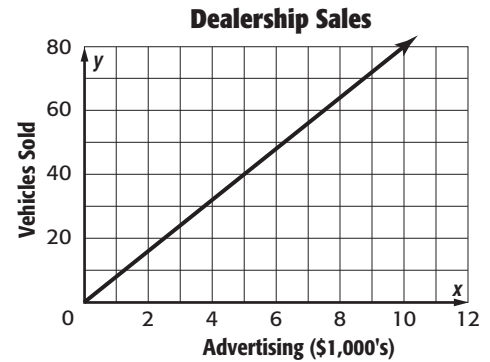
- Find the slope of the line.
- Does the graph show a constant rate of change? Explain.
- If the graph is extended to the right, could you expect the slope to remain constant? Explain.



Lesson 3 Homework Practice

Equations in $y = mx$ Form

1. **ADVERTISING** The number of vehicles a dealership sells varies directly with the money spent on advertising. How many vehicles does the dealership sell for each \$1,000 spent on advertising?



2. **SNOWMOBILES** Bruce rents snowmobiles to tourists. He charges \$135 for 4 hours and \$202.50 for 6 hours. What is the hourly rate Bruce charges to rent a snowmobile?
3. **SOLAR ENERGY** The power absorbed by a solar panel varies directly with its area. If an 8 square meter panel absorbs 8,160 watts of power, how much power does a 12 square meter solar panel absorb?
4. **INSECT CONTROL** Mr. Malone used 40 pounds of insecticide to cover 1,760 square feet of lawn and 60 pounds to cover an additional 2,640 square feet. How many pounds of insecticide would Mr. Malone need to cover his whole lawn of 4,480 square feet?

Determine whether each linear function is a direct variation. If so, state the constant of variation.

5.

Volume, x	2	4	6	8
Mass, y	10	20	30	40

6.

Gallons, x	5	10	15	20
Miles, y	95	190	285	380

7.

Time, x	8	9	10	11
Temp, y	68	71	74	77

8.

Age, x	3	6	9	12
Height, y	28	40	52	64

ALGEBRA If y varies directly with x , write an equation for the direct variation. Then find each value.

9. If $y = -5$ when $x = 2$, find y when $x = 8$.
10. Find y when $x = 1$, if $y = 3$ when $x = 2$.
11. If $y = -7$ when $x = -21$, what is the value of x when $y = 9$?
12. Find x when $y = 18$, if $y = 5$ when $x = 4$.

Lesson 4 Homework Practice

Slope-Intercept Form

State the slope and the y-intercept for the graph of each equation.

1. $y = 4x + 1$

2. $y = -3x + 5$

3. $-x + y = 4$

4. $y = \frac{5}{6}x - 3$

5. $y + 3x = -7$

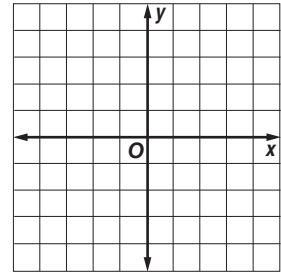
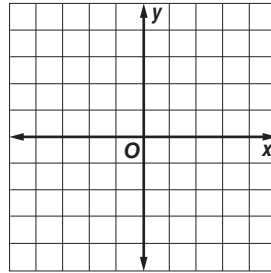
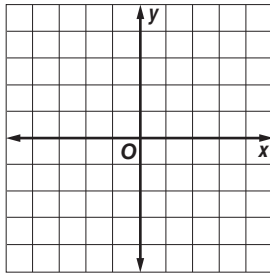
6. $y = \frac{1}{5}x + 2$

Graph each equation using the slope and the y-intercept.

7. $y = -2x + 2$

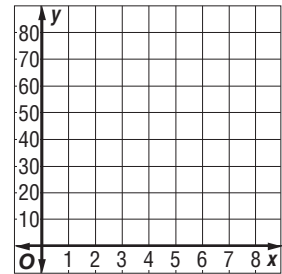
8. $y + x = -3$

9. $1 = y - \frac{2}{3}x$

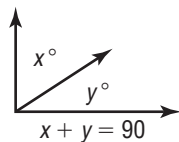


10. **CAMPING** The entrance fee to the national park is \$15. A campsite fee is \$15 per night. The total cost y for a camping trip for x nights can be represented by the equation $y = 15x + 15$.

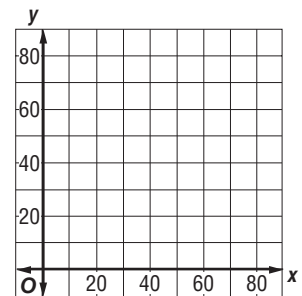
- Graph the equation.
- Use the graph to find the total cost for 4 nights.
- Interpret the slope and the y-intercept.



11. **GEOMETRY** Use the diagram shown.



- Write the equation in slope-intercept form.
- Graph the equation.
- Use the graph to find the value of y if $x = 30$.



Lesson 5 Homework Practice

Graph a Line Using Intercepts

State the x - and y -intercepts of each function.

1. $-6x + 8y = 24$

2. $\frac{3}{4}x - 6y = 18$

3. $-\frac{1}{4}x - \frac{1}{3}y = 12$

4. $-10x - 10y = -20$

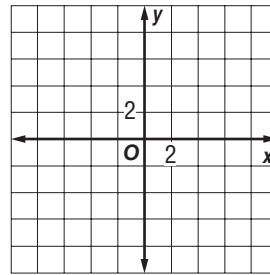
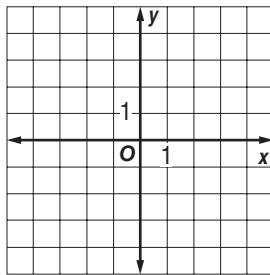
5. $x + y = 1$

6. $-x - y = \frac{1}{2}$

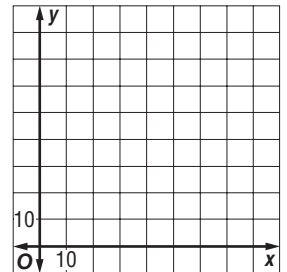
State the x - and y -intercepts of each function. Then graph the function.

7. $-4x + 2y = -8$

8. $6x - 2y = -18$



9. **FARMING** Mr. Jeans raises cows and chickens on his farm. Altogether, his cows and chickens have 140 legs. This can be represented by the function $4x + 2y = 140$. Graph the function. Then interpret the x - and y -intercepts.



10. **MONEY** Monty has a total of \$290 in ten dollar and five dollar bills. This can be represented by the function $10x + 5y = 290$. Interpret the x - and y -intercepts.

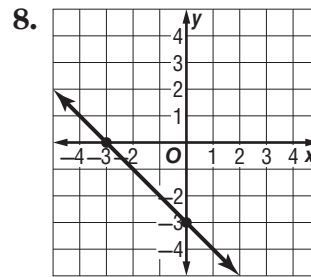
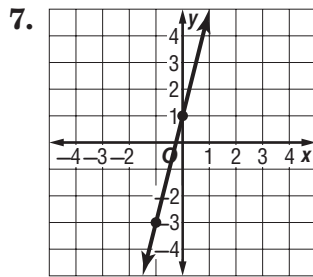
Lesson 6 Homework Practice

Write Linear Equations

Write an equation in point-slope form and slope-intercept form for each line.

1. passes through $(-5, 6)$, slope = 3
2. passes through $(6, -6)$, slope = 5
3. passes through $(0, 1)$ and $(2, 5)$
4. passes through $(-5, 9)$ and $(1, 3)$
5. passes through $(1, -1)$ and $(2, 0)$
6. passes through $(-3, -5)$, slope = 2

Write the point-slope form of an equation for each line graphed.



9. **TEMPERATURE** The table shows the temperature at certain hours. Assuming the temperature change is linear, write an equation in point-slope form to represent the temperature y at x hour.

Hour	Temperature (°F)
1	35
2	39

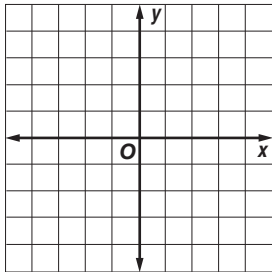
10. **SPEED** After 2 hours, a car travels 70 miles. After 2.25 hours in the same trip, the car travels 78.75 miles. Write an equation in point-slope form to represent the distance y of the car after x hours.

Lesson 7 Homework Practice

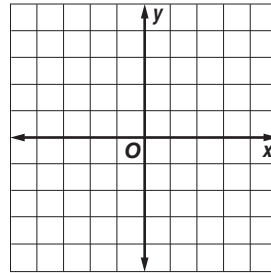
Solve Systems of Equations by Graphing

Solve each system of equations by graphing.

1. $y = 3x + 4$
 $y = -x - 4$

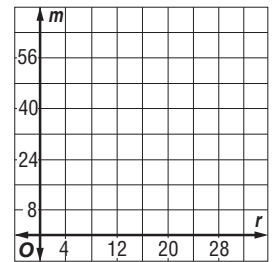


2. $y = 10 + 6x$
 $y = 6x$

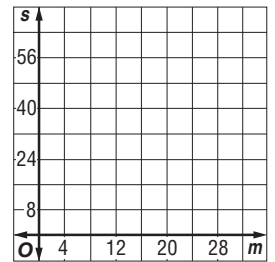


Write and solve a system of equations that represents each situation. Interpret the solution.

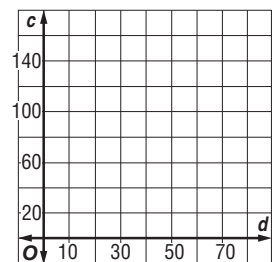
3. **BASKETBALL** Alonzo and Miguel scored a total of 54 points in the basketball game. Miguel scored four more points than Alonzo.



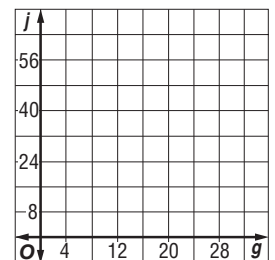
4. **AGES** Morgan is 15 years younger than Mrs. Santos. Their combined age is 44.



5. **ANIMALS** The total number of cats and dogs at the shelter is 125. There are 5 more cats than dogs.



6. **PING-PONG** Jenny won the ping-pong championship eight more times than Gerardo. They have won a combined total of 32 championships.



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Lesson 8 Homework Practice

Solve Systems of Equations Algebraically

Solve each system of equations algebraically.

1. $y = x + 2$
 $y = -3x$

2. $y = -x$
 $y = -7x$

3. $y = -x - 4$
 $y = x$

4. $y = x - 6$
 $y = 2x$

5. $y = x + 5$
 $y = -2x$

6. $y = x - 4$
 $y = 2x$

7. $y = -x - 14$
 $y = -8x$

8. $y = x + 20$
 $y = 6x$

9. $y = -x - 3$
 $y = 3x$

Write and solve a system of equations that represents each situation. Interpret the solution.

10. **MONEY** Neil has a total of twelve \$5 and \$10 bills in his wallet. He has 5 times as many \$10 bills as \$5 dollar bills. How many of each does he have?
11. **HAYRIDE** Hillary and 23 of her friends went on a hayride. There are 8 more boys than girls on the ride. How many boys and girls were on the ride?
12. **DRIVING** Winston drove a total of 248 miles on Monday. He drove 70 fewer miles in the morning than he did in the afternoon. How many miles did he drive in the afternoon?