

Skills Practice

Skills Practice for Lesson 1.1

Name _____

Date _____

Tanks a Lot Introduction to Linear Functions

Vocabulary

Define each term in your own words.

1. function
2. linear function
3. independent variable
4. dependent variable
5. variable

Problem Set

Determine the independent quantity and the dependent quantity in each example.

1. A car is traveling at a rate of sixty miles per hour for several hours.

independent quantity: time in hours

dependent quantity: distance in miles

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- Sharon is growing at a rate of two inches per year.
 - The area of a square floor is the product of the length of two of its sides.

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- The perimeter of a square is the sum of the length of all four of its sides.
- The length of a video file in minutes relates to the size of the file in bytes.
- The total weight of a bag of apples in pounds relates to the number of apples in the bag.

Define a variable to represent each of the quantities. Then write an equation that shows the relationship between the two variables.

- A runner travels 4 miles per hour. Write an equation to show the relationship between the total distance the runner travels and the time.

Let t represent the amount of time in hours.

Let d represent the distance the runner travels in miles.

$$d = 4t$$

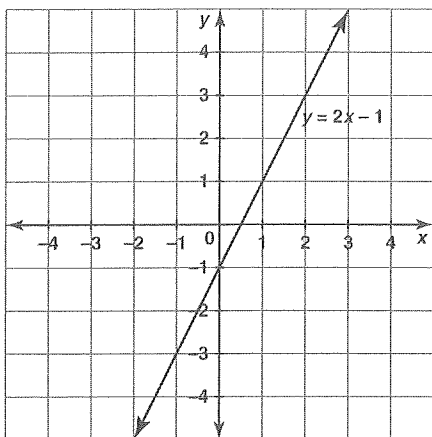
- Each DVD at an electronics store costs \$12.50. Write an equation to show the relationship between the total cost when purchasing DVDs and the number of DVDs.

Name _____ Date _____

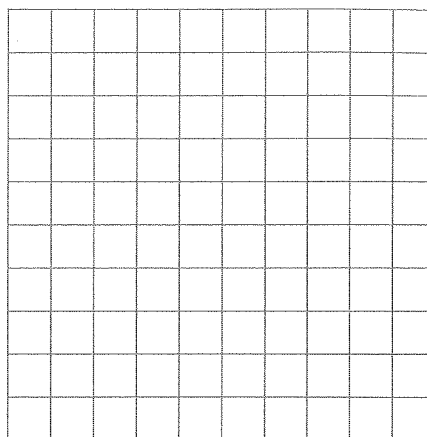
9. To make one solar panel, a company uses two kilograms of silicon. The company has 100 kilograms of silicon. Write an equation to show the relationship between the amount of silicon remaining and the number of solar panels made.
10. A bowling ball company uses seven pounds of resin to make one seven-pound bowling ball. They have a total of 490 pounds of resin. Write an equation to show the relationship between the amount of resin remaining and the number of seven-pound bowling balls made.
11. Julia opens a bank account and deposits \$500 into the account. Each month, she deposits \$50 into the account. Write an equation to show the relationship between the total amount of money in her bank account and the number of months since she opened the account.
12. A water tower contains 15,000 gallons of water. Each week, 2500 gallons of water are used and 1000 gallons of water are added. Write an equation to show the relationship between the total amount of water remaining in the water tower and the number of weeks that have elapsed.

Graph each linear function.

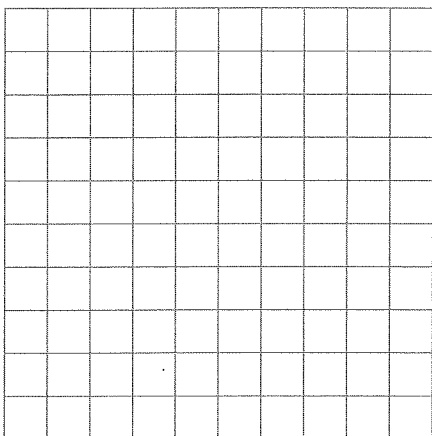
13. $y = 2x - 1$



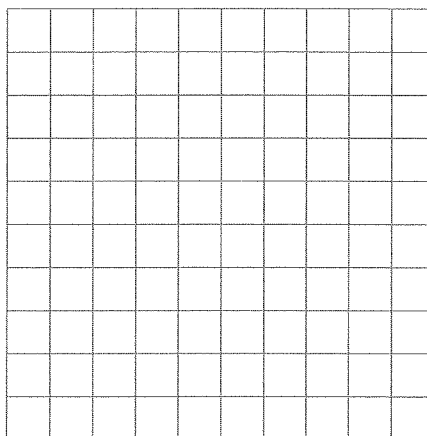
14. $y = 3x + 2$



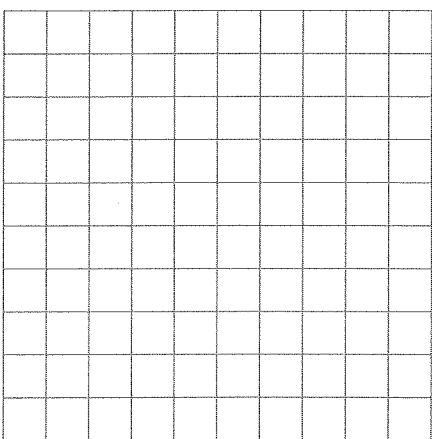
15. $y = -\frac{1}{2}x + 2$



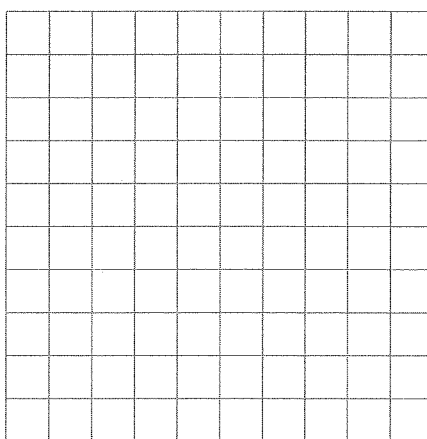
16. $y = \frac{2}{3}x - \frac{1}{2}$



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



18. $y = 2x - \frac{7}{3}$



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Use the given information to answer each question.

19. The distance, d , in miles that a plane travels can be modeled by the equation $d = 550t$, where t represents the time in hours. If the plane travels for 7 hours, how far will it go?

$$d = 550t$$

$$d = 550(7)$$

$$d = 3850$$

The plane will travel 3850 miles in 7 hours.

20. The distance, d , in feet that a fly travels can be modeled by the equation $d = 5t$, where t represents the time in seconds. If the fly travels for 30 seconds, how far will it have gone?

21. The equation $w = 1,000,000 - 20m$ shows the amount of water, w , in gallons remaining in a water tower, where m represents the number of minutes that have passed. When will there be 750,000 gallons of water in the water tower?

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22. The equation $a = 1750 - 50t$ shows the amount of money, a , in dollars remaining in a bank account where t represents the time in weeks. When will the balance in the account be \$1000?

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23. A ticket seller's weekly earning, s , in dollars can be modeled by the equation $s = 0.10t + 350$, where t represents the number of tickets he sells. How many tickets will the ticket seller have to sell to make \$440 that week?
24. The total number of computers, c , that a company can manufacture can be modeled by the equation $c = \frac{1}{50}s + 250$, where s represents the number of screws that they need to order. How many screws will they need to order so that they can manufacture 525 computers?