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Lesson 3.3 Understanding Linear Equations with Two Variables

Write a linear equation for the relationship between the given quantities.

1. kilometers, k , and meters, m
2. pounds, p , and ounces, u
3. days, d , and hours, h
4. megabytes, m , and bytes, b

Find the value of y when $x = -3$.

5. $4 - 2x = 8 + y$

6. $y = \frac{5}{4}(x + 7)$

7. $3(y - 5) = 5x + 3$

8. $7(x - 3) = 6y$

Find the value of x when $y = 5$.

9. $3(x - 3) = 2y$

10. $\frac{5x - 3}{2} = 2(y + 3)$

11. $3x + 2y = 0.2(2y + 1)$

12. $7y - 4x = 51$

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**Create a table of x and y values for each equation.
Use integer values of x from 2 to 4.**

13. $y = \frac{1}{3}(9x - 18)$

14. $3x - 4 = \frac{1}{5}(y - 5)$

15. $-7y = 4x - 3$

16. $\frac{1}{4}(6x + 1) = \frac{1}{2}(y + 2)$

Complete the table of x and y values for each equation.

17. $y = 4(2x + 1)$

x	1	2	3
y			

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

x			3
y	9	3	

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Complete the table of x and y values for each of the following equations.

19. $4(y - 3x) = \frac{4}{5}$

x		1	2
y	$\frac{1}{5}$		

20. $3x = 5(y - 7)$

x			
y	-5	10	25

Solve. Show your work.

21. A new bakery shop sells rolls for \$2 each. Before noon each day, if a customer buys 2 rolls or more, they receive a discount of \$1. The table shows the cost, C in dollars, in terms of rolls purchased before noon.

Cost (C dollars)	3	5	7	9	11	13
Number of Buns (n)	2	3	4	5	6	7

- a) Write a linear equation for the cost, C , in terms of the number of buns, n , purchased before noon.
- b) Find the cost of the 30 rolls that Mrs. Carmen purchased before noon today.

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Solve. Show your work.

22. A tank initially contains 50 liters of water. A tap adds water to the tank at a rate of 2 liters per minute.

a) Write a linear equation for the amount of water in the tank, W liters, in terms of t minutes.

b) Use the equation in **a)** to complete the table of values below.

Time (t minutes)	20			80
Amount of Water in Tank (W liters)		130	170	210

c) How much water is in the tank after 5 hours?

d) The tank can hold 1,000 liters of water when filled completely. How long will it take to completely fill the tank? Write your answer in hours and minutes.

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Solve. Show your work.

23. Joel has \$40 in his piggy bank. He plans to add \$7.50 a week when he starts his summer vacation job.

- a) Write a linear equation for the amount in his bank, A dollars, in terms of time worked, t weeks.

- b) Create a table of t and A values for the linear equation. Use $t = 4, 6,$ and 8 .

- c) Find the number of weeks that Joel will have to save to buy a \$175 season pass to a golf club.

24. Annabel sells sunscreen from a beach kiosk station. Each week, she receives \$90 plus \$0.25 for each tube of sunscreen that she sells.

- a) Write a linear equation for her weekly salary, M , in terms of the number of tubes of sunscreen sold, n . Then, use the equation to create a table of values for M and n using the linear formula. Use $n = 64, 76, 88,$ and 100 .

- b) What was Annabel's weekly pay if she sold 360 tubes of sunscreen last week?

- c) If Annabel's weekly pay was \$130, how many tubes of sunscreen did she sell that week?