

Tell whether each function is linear. If so, graph the function.

21. $y = 5$ 22. $4y - 2x = 0$ 23. $\frac{3}{x} + 4y = 10$ 24. $5 + 3y = 8$

25. **Transportation** The gas tank in Tony's car holds 15 gallons, and the car can travel 25 miles for each gallon of gas. When Tony begins with a full tank of gas, the function $f(x) = -\frac{1}{25}x + 15$ gives the amount of gas $f(x)$ that will be left in the tank after traveling x miles (if he does not buy more gas). Graph this function and give its domain and range.

Tell whether the given ordered pairs satisfy a function. If so, is it a linear function?

26. $\{(2, 5), (2, 4), (2, 3), (2, 2), (2, 1)\}$ 27. $\{(-8, 2), (-6, 0), (-4, -2), (-2, -4), (0, -6)\}$

28.

x	-10	-6	-2	2	4
y	0	0.25	0.50	0.75	1

29.

x	-5	-1	3	7	11
y	1	1	1	1	1

Tell whether each equation is linear. If so, write the equation in standard form and give the values of A , B , and C .

30. $2x - 8y = 16$ 31. $y = 4x + 2$ 32. $2x = \frac{y}{3} - 4$ 33. $\frac{4}{x} = y$
 34. $\frac{x+4}{2} = \frac{y-4}{3}$ 35. $x = 7$ 36. $xy = 6$ 37. $3x - 5 + y = 2y - 4$
 38. $y = -x + 2$ 39. $5x = 2y - 3$ 40. $2y = -6$ 41. $y = \sqrt{x}$

Graph each linear function.

42. $y = 3x + 7$ 43. $y = x + 25$ 44. $y = 8 - x$ 45. $y = 2x$
 46. $-2y = -3x + 6$ 47. $y - x = 4$ 48. $y - 2x = -3$ 49. $x = 5 + y$

50. **Measurement** One inch is equal to approximately 2.5 centimeters. Let x represent inches and y represent centimeters. Write an equation in standard form relating x and y . Give the values of A , B , and C .

51. **Wages** Molly earns \$8.00 an hour at her job.

- Let x represent the number of hours that Molly works. Write a function using x and $f(x)$ that describes Molly's pay for working x hours.
- Graph this function and give its domain and range.

H.O.T. 52. **Write About It** For $y = 2x - 1$, make a table of ordered pairs and a graph. Describe the relationships between the equation, the table, and the graph.

H.O.T. 53. **Critical Thinking** Describe a real-world situation that can be represented by a linear function whose domain and range must be limited. Give your function and its domain and range.

Real-World Connections



54. a. Juan is running on a treadmill. The table shows the number of Calories Juan burns as a function of time. Explain how you can tell that this relationship is linear by using the table.
 b. Create a graph of the data.
 c. How can you tell from the graph that the relationship is linear?

Time (min)	Calories
3	27
6	54
9	81
12	108
15	135
18	162
21	189