Check It Out
Help with Homework
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## ✓ Vocabulary and Concept Check

1. **VOCABULARY** Describe the difference between a linear function and a nonlinear function.

2. **WHICH ONE DOESN'T BELONG?** Which equation does *not* belong with the other three? Explain your reasoning.

$$5y = 2x \qquad y = \frac{2}{5}x \qquad 10y = 4x \qquad 5xy = 2$$

Practice and Problem Solving

Graph the data in the table. Decide whether the function is *linear* or *nonlinear*.

3.

x	0	1	2	3
y	4	8	12	16

4.

x	1	2	3	4
y	1	2	6	24

5.

x	6	5	4	3
y	21	15	10	6

6.

x	−1	0	1	2
y	−7	−3	1	5

Does the table or graph represent a *linear* or *nonlinear* function? Explain.

7.

8.
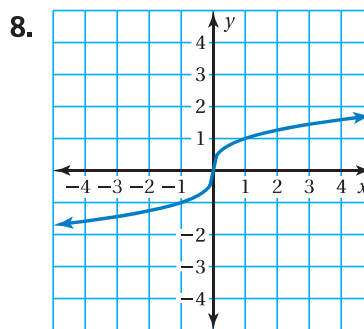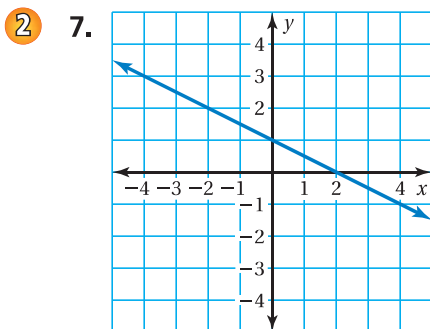
9.

x	5	11	17	23
y	7	11	15	19

10.

x	−3	−1	1	3
y	9	1	1	9

11. **VOLUME** The table shows the volume V (in cubic feet) of a cube with a side length of x feet. Does the table represent a linear or nonlinear function? Explain.

Side Length, x	1	2	3	4	5	6	7	8
Volume, V	1	8	27	64	125	216	343	512

Does the equation represent a *linear* or *nonlinear* function? Explain.

③ 12. $2x + 3y = 7$

13. $y + x = 4x + 5$

14. $y = \dfrac{8}{x^2}$

15. SUNFLOWER SEEDS The table shows the cost y (in dollars) of x pounds of sunflower seeds.

Pounds, x	Cost, y
2	2.80
3	?
4	5.60

   a. What is the missing y-value that makes the table represent a linear function?

   b. Write a linear function that represents the cost y of x pounds of seeds.

16. LIGHT The frequency y (in terahertz) of a light wave is a function of its wavelength x (in nanometers). Does the table represent a linear or nonlinear function? Explain.

Color	Red	Yellow	Green	Blue	Violet
Wavelength, x	660	595	530	465	400
Frequency, y	454	504	566	645	749

17. LIGHTHOUSES The table shows the heights x (in feet) of four Florida lighthouses and the number y of steps in each. Does the table represent a linear or nonlinear function? Explain.

Lighthouse	Height, x	Steps, y
Ponce de Leon Inlet	175	213
St. Augustine	167	219
Cape Canaveral	145	179
Key West	86	98

18. PROJECT The wooden bars of a xylophone produce different musical notes when struck. The pitch of a note is determined by the length of the bar. Use the Internet or some other reference to decide whether the pitch of a note is a linear function of the length of the bar.

19. Geometry The radius of the base of a cylinder is 3 feet. Is the volume of the cylinder a linear or nonlinear function of the height of the cylinder?

Fair Game Review **What you learned in previous grades & lessons**

Classify the angle as *acute, obtuse, right,* or *straight*. *(Skills Review Handbook)*

20.

21.

22.

23.

24. MULTIPLE CHOICE What is the value of x? *(Section 1.1)*

Ⓐ 30   Ⓑ 60   Ⓒ 90   Ⓓ 180

30°

$x°$