Lesson 5 Practice Problems

1. The relationship between a distance in yards (y) and the same distance in miles (m) is described by the equation $y = 1760m$.

   a. Find measurements in yards and miles for distances by completing the table.

distance measured in miles	distance measured in yards
1	
5	
	3,520
	17,600

   b. Is there a proportional relationship between a measurement in yards and a measurement in miles for the same distance? Explain why or why not.

2. Decide whether or not each equation represents a proportional relationship.

   a. The remaining length (L) of 120-inch rope after x inches have been cut off: $120 - x = L$

   b. The total cost (t) after 8% sales tax is added to an item's price (p): $1.08p = t$

   c. The number of marbles each sister gets (x) when m marbles are shared equally among four sisters: $x = \frac{m}{4}$

   d. The volume (V) of a rectangular prism whose height is 12 cm and base is a square with side lengths s cm: $V = 12s^2$

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3. a. Use the equation $y = \frac{5}{2}x$ to complete the table.
   Is y proportional to x? Explain why or why not.

x	y
2	
3	
6	

   b. Use the equation $y = 3.2x + 5$ to complete the table.
   Is y proportional to x? Explain why or why not.

x	y
1	
2	
4	

4. To transmit information on the internet, large files are broken into packets of smaller sizes. Each packet has 1,500 bytes of information. An equation relating packets to bytes of information is given by $b = 1{,}500p$ where p represents the number of packets and b represents the number of bytes of information.

   a. How many packets would be needed to transmit 30,000 bytes of information?

   b. How much information could be transmitted in 30,000 packets?

   c. Each byte contains 8 bits of information. Write an equation to represent the relationship between the number of packets and the number of bits.

(From Unit 5, Lesson 3.)

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