

Lesson 5 Problem-Solving Practice

Proportional and Nonproportional Relationships

1. The National Weather Service has a Wind Chill Temperature (WCT) index. The table shows how cold people and animals feel when the temperature outside is 20°F. Determine whether the set of numbers in the pattern forms a proportion. **no**

Wind Chill (°F)	13	9	6	4
Wind (mph)	5	10	15	20

2. The table shows the coverage for a brand of interior paint when it is applied on primed walls. Determine whether the set of numbers in the pattern forms a proportion. **yes**

Paint (gal)	1	2	3	4
Area (square ft)	360	720	1080	1440

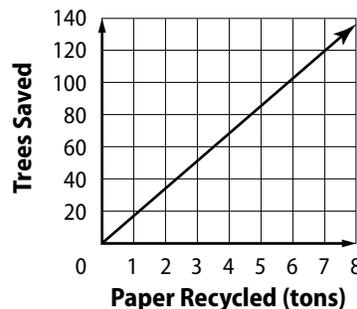
3. A school is repainting some of its classrooms. Each classroom is repainted with 5.5 gallons of paint. Write and solve an equation to determine the gallons of paint the school must purchase if they repaint 18 classrooms.
 $g = 5.5c$; 99 gal

4. Gwen bought $3\frac{1}{4}$ yards of fabric for \$16.22. Write and solve an equation to determine how much 12 yards would cost.
 $c = 4.99y$; \$59.88

5. Micah did some research on paper consumption and recycling efforts. She found that for every ton of paper that is recycled, 17 trees are saved. Complete the table.

Tons of Paper Recycled	1	2	4	7
Trees Saved	17	34	68	119

6. Refer to the table in Exercise 5. Make a graph of the situation. Does the pattern form a proportion? **yes**



Lesson 5 Enrich

Direct Variation

If the relationship between two quantities is such that when one quantity increases, the other increases proportionally, or when one quantity decreases, the other decreases proportionally, the quantities are said to **vary directly**.

Example If 2 loaves of bread cost \$1.60, how much will 3 loaves of the same type of bread cost?

As the number of loaves increases, so does the cost. If 2 loaves cost \$1.60, then 1 loaf costs \$0.80. Use this information to complete a table.

Loaves	1	2	3
Cost	\$0.80	\$1.60	\$2.40

Use a table to solve.

- Three gallons of gasoline cost \$11.04.
How much do 5 gallons cost?
\$18.40
- At a rate of 50 mph, a car travels a distance of 600 miles. How far will the car travel at a rate of 40 mph if it is driven the same amount of time?
480 miles
- If the rent for two weeks is \$500, how much rent is paid for 5 weeks?
\$1250
- If 8 newspapers cost \$10.00, how much will 6 newspapers cost?
\$7.50
- If 9 fully loaded trucks carry a total of 140,400 pounds, how many pounds can 3 trucks carry?
46,800 pounds
- Twelve external data storage units can hold 16.8 million bytes of data. How many bytes will 20 external data storage drives hold?
28 million bytes
- Four hundred thirty-five people can ride a Ferris wheel in 15 minutes. How many people can ride the Ferris wheel in 90 minutes?
2610 people
- There are a total of 2100 Calories in 5 candy bars (all the same kind). How many total Calories are there in 3 dozen of these candy bars?
15,120 Calories