

PR3 PROBLEM BANK

These problems are intended as extra practice or extension as needed, to be completed on a separate piece of paper.

LESSON 1: EXTRA PRACTICE

1. Solve each equation below. Show work.

a. $\frac{2}{3} = \frac{x}{15}$

b. $\frac{x}{4} = \frac{18}{8}$

c. $\frac{7}{x} = \frac{21}{3}$

d. $\frac{9}{2} = \frac{81}{x}$

e. $\frac{1}{4} = \frac{x}{100}$

f. $\frac{7}{8} = \frac{49}{x}$

g. $\frac{6}{9} = \frac{10}{x}$

h. $\frac{5}{x} = \frac{6}{12}$

i. $\frac{x}{4} = \frac{18}{20}$

j. $\frac{2}{x} = \frac{6}{15}$

k. $\frac{9}{2} = \frac{x}{5}$

l. $\frac{4}{5} = \frac{18}{x}$

Solve the problems below using strategies of your choice (tables, unit prices, double number lines, equivalent fractions, proportions).

2. You find that your watch gains 2 minutes in 6 hours.

- How many minutes does your watch gain per hour?
- How many hours would it take your watch to gain 60 minutes?
- How many minutes would your watch gain in 15 hours?

3. A worker can complete the assembly of 15 DVD players in 3 hours.

- How many DVD players can a worker make in 1 hour?
- How long would it take to assemble 65 DVD players?
- At this rate, how many DVD players can a worker complete in a 40-hour work week?

4. Rewrite the equation $\frac{2}{3} = \frac{6}{9}$ in three other ways to create true equations.

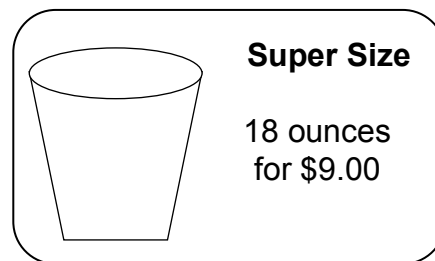
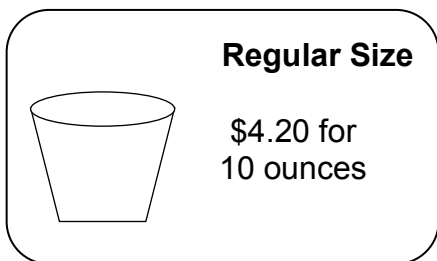
LESSON 1: EXTRA PRACTICE

(Continued)

5. Solve each problem using strategies of your choice (tables, unit prices, double number lines, equivalent fractions, proportions).
- Carli ran 4 miles in 24 minutes. How many minutes did it take her to run 8 miles?
 - Miranda's heart beats 3 times every 2 seconds. At that rate, how many times does her heart beat in 1 minute?
 - Carol spends 17 hours in a 2-week period practicing her culinary skills. How many hours does she practice in 5 weeks?
 - In the professional world, typing 80 words per minute is considered acceptable. How many words per 30 minutes is this?
 - In a shipment of 400 parts, 14 are found to be defective. How many defective parts should be expected in a shipment of 1,000?
 - A company's quality control department found an average of 5 defective models for every 1,000 models that were checked. If the company produced 60,000 models in a year, how many of them would be expected to be defective?
 - An employee working at an electronics store earned \$3,900 for working 3 months during the summer. What did the employee earn for the first two months?
 - If 3 pounds of apples costs \$0.90, how much will 10 pounds cost?
 - A yard of fabric costs \$13. How much will 2 feet cost?
 - It takes about 20 minutes to grade a student's paper. How long, in hours, does it take to grade papers for a class of 25 students?
 - To determine the number of deer in a forest, a forest ranger tags 280 and releases them back into the forest. Later, 405 deer are caught, out of which 45 of them are tagged. Estimate how many deer are in the forest.
 - Hurricane Katrina dropped about 14 inches of rain over a 48 hour period. How much rain is this per hour? (Round your answer to the nearest tenth.)

LESSON 2: EXTRA PRACTICE

- Shmear 'N Things sells 4 bagels for \$3.00. Hole-y Bread sells 5 bagels for \$4.00. Create two tables to represent this information. Assume each shop will sell you any number of bagels at the rates shown above.
 - What is the unit rate for each store?
 - Which shop has the better buy?
- Suppose you are shopping for your favorite frozen yogurt. You find there are two different size packages available.



- Which package is the better buy? Justify your answer using multiple representations (tables, equations, graphs, and words).
 - Find the points $(1, y)$ on each graph. Explain what each of these points mean in the context of the problem.
- Hugo is buying cupcakes for a birthday party. At Cupcake Land, he can buy 6 cupcakes for \$5. At Cake-in-a-Cup, he can buy 9 similar cupcakes for \$8.
 - Which store offers Hugo a better buy? Explain.
 - Harvey says that The Sweet Shop, offering 12 cupcakes for \$10, is a better deal than the choices in problem 3 because he can get the most cupcakes. Critique Harvey's reasoning.
 - Which of the following stores offers the best buy?

MUFFIN MADNESS

3 Muffins for \$2

MUFFIN MAYHEM

4 Muffins for \$2.50

MUFFIN UP!

5 Muffins for \$3.00

LESSON 2: EXTRA PRACTICE

(Continued)

5. Carmella compared the prices at 3 different coffee shops. Determine if their pricing is proportional to the size of the cup or not, and explain your reasoning.

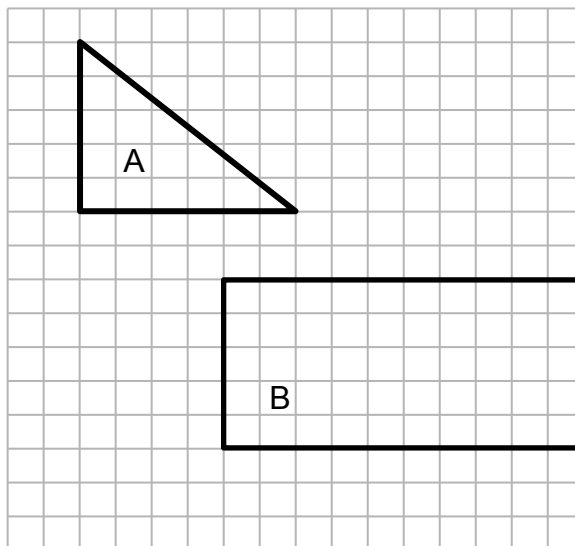
Coffee Shop A		Coffee Shop B		Coffee Shop C	
Size (in ounces)	Price (in dollars)	Size (in ounces)	Price (in dollars)	Size (in ounces)	Price (in dollars)
8	\$1.50	8	\$1.00	8	\$1.00
12	\$3.00	12	\$1.50	12	\$2.00
24	\$4.50	24	\$3.00	24	\$4.00

6. Store A sells Almonds for \$7.50 for 1.5 pounds. Store B sells Almonds for \$11.10 for 2 pounds. Create tables that show these relationships.
- Which store offers the better buy?
 - What does the point $(0, 0)$ represent for Store A?
 - What does the point $(1, \underline{\quad})$ represent for Store A?
 - Graph the lines. What about the graphed lines confirms that the almond-price relationship is proportional?
7. Which is the better buy for each situation below and explain your reasoning. No calculations are necessary.
- 0.75 pounds of oranges for \$1.00 or 1.25 pounds of oranges for \$1.00.
 - 3 pounds of bananas for \$3.65 or 3 pounds of bananas for \$4.15.

LESSON 3: EXTRA PRACTICE

1. Copy figures A and B onto a separate piece of grid paper to help answer the following problems.

- If figure A was enlarged using a scale of $3 : 1$, what would be the base and height of the triangle?
- If figure A was reduced using a scale of $1 : 2$, what would be the base and height of the triangle?
- If figure A was enlarged using a scale of $8 : 1$, what would be the base and height of the triangle?
- If figure A was changed using a scale of $1 : 1$, what would be the base and height of the triangle?



- If figure B was enlarged using a scale of $3 : 1$, what would be the base and height of the rectangle?
 - If figure B was reduced using a scale of $1 : 2$, what would be the base and height of the rectangle?
 - If figure B was enlarged using a scale of $10 : 1$, what would be the base and height of the rectangle?
 - If figure B was reduced using a scale of $1 : 4$, what would be the base and height of the rectangle?
2. On a separate piece of grid paper, draw a rectangle that has a base of 3 units and a height of 9 units. Draw the figure with a scale factor of $1 : 2$.
- Write the scale factor as a percent.
 - Write the scale factor as a number.
 - Is this an enlargement or a reduction?
 - What is the new height length?
 - What is the new base length?

LESSON 3: EXTRA PRACTICE

(Continued)

3. On a separate piece of grid paper, draw a rectangle that has a base of 3 units and a height of 9 units. Draw the figure with a scale factor of $3 : 1$.
 - a. Write the scale factor as a percent.
 - b. Write the scale factor as a number.
 - c. Is this an enlargement or a reduction?
 - d. What is the new height length?
 - e. What is the new base length?

4. On a separate piece of grid paper, draw a rectangle that has a base of 4 units and a height of 12 units. Draw the figure with a scale factor of $3 : 2$.
 - a. Write the scale factor as a percent.
 - b. Write the scale factor as a number.
 - c. Is this an enlargement or a reduction?
 - d. What is the new height length?
 - e. What is the new base length?

5. Bobby is drawing a square robot. The body of the robot is 8 units on each side. He wants to make the head of the robot 25% as big as the body (scale factor).
 - a. What would be the scale factor (as a number)?
 - b. What would be the scale?
 - c. Is this an enlargement or reduction?
 - d. What are the lengths of the new sides?