Skills Practice

Name _____ Date _____

I. Unit Rate Representations

A. Write a unit rate for each recipe or mix. Compare the unit rates to answer each question.

1. Gerain and Deon are each making trail mix. Gerain's recipe calls for 3 parts raisins to 2 parts almonds. Deon's recipe calls for 4 parts raisins to 3 parts almonds. Which recipe has a higher concentration of almonds?

2. Taisha and Shakina are each making punch. Taisha's recipe calls for 5 parts pineapple juice to 3 parts orange sherbet. Shakina's recipe calls for 8 parts pineapple juice to 6 parts orange sherbet. Which recipe will have a stronger orange flavor?

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3. Jin and Nami are each making Hawaiian snack mix. Jin's recipe calls for 5 parts dried pineapple to 2 parts macadamia nuts. Nami's recipe calls for 3 parts dried pineapple to 1 part macadamia nuts. Which recipe has a higher concentration of macadamia nuts?

4. Juanita and Lydia are each making lemonade. Juanita's recipe calls for 4 parts lemon juice to 2 parts sugar syrup. Lydia's recipe calls for 5 parts lemon juice to 3 parts sugar syrup. Which recipe has a stronger lemon flavor?

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5. Leon and Cisco are each making snack mix. Leon's recipe calls for 8 parts pretzels to 3 parts peanuts. Cisco's recipe calls for 6 parts pretzels to 2 parts peanuts. Which recipe has a higher concentration of peanuts?

6. Belinda and Cristina are each making a wildflower seed mix to plant in their gardens. Belinda's mix calls for 8 parts poppy seeds to 5 parts daisy seeds. Cristina's mix calls for 10 parts poppy seeds to 8 parts daisy seeds. Which mix will produce a higher concentration of poppy flowers?

B. Complete each table. Use the table to determine the unit rate.

1. Lorenzo can read 12 pages of his book in 3 minutes.

Minutes	1	3		
pages		12	24	48

2. Perry is delivering newspapers. In 2 hours he delivers 60 newspapers.

Newspapers		60	90	105
Hours	1	2		

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3. Joelle's new printer can print 10 photos in 5 minutes.

Photos		10	25	50
Minutes	1	5		

4. Denisa is mixing blue paint and white paint to create a shade of light blue paint. She creates the shade she likes by mixing 12 ounces of blue paint with 8 ounces of white paint.

Blue paint (oz)		12	18	
White paint (oz)	1	8		18

5. Belinda is making fruit salad. The recipe calls for 3 cups of sliced peaches to 2 cups of halved grapes.

Peaches (c)		3		6
Grapes (c)	1	2	3	

6. Mattie is stuffing envelopes. She stuffs 50 envelopes in 30 minutes.

Envelopes		50		
Hours	0.25	0.5	1	2

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II. Solving Problems with Ratios of Fractions

A. Rewrite each given rate as a unit rate.

1. A cell phone company mistakenly advertises that their data plan costs 50 cents for every 10 kilobytes of data.

2. Sue's Stop-n-Shop advertises that 12-ounce sodas are 99 cents each.

3. A carnival game advertises 50 cents to toss 4 rings.

4. At a yard sale, Enzo sees a sign that advertises 85 cents for 5 books.

5. School Supplies R Us is having a back-to school sale and advertises in the local paper that pencils are 88 cents for 11.

6. Wesley's Wings and More advertises that wings are 75 cents for 2 on Monday nights.

7. A fast-food restaurant has a sign that says "5 chicken nuggets for 95 cents".

8. A recycling center claims to give 96 cents for every 12 aluminum cans turned in.

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B. The table shows the weights of four different animals as adults and babies.

Animal	Adult Weight (pounds)	Baby Weight (pounds)
Tiger	650	$2\frac{1}{2}$
Giraffe	3000	110
Polar Bear	750	1.3
Elephant	8000	200
Panda	190	0.2

Determine the ratio of baby weight to adult weight for each animal. Round to the nearest thousandth, if necessary.

1. Tiger

2. Giraffe

3. Polar Bear

4. Elephant

5. Panda

6. Compare the ratios of baby weight to adult weight. List the animals in order from the least to the greatest ratio.

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C. Answer each question by comparing unit rates.

1. Marcus can type 40 words in half a minute. Rhys can type 100 words in one and a half minutes. Which student can type at a greater rate of words per minute?

2. Yumi takes $\frac{5}{12}$ hour to complete 50 math problems. Eric is able to complete 48 math problems in $\frac{2}{5}$ hour. Which student can complete math problems at a greater rate of problems per hour?

3. Maggie's home computer downloads a 7 megabyte program in $\frac{5}{6}$ minute. Brooke's home computer takes $1\frac{1}{4}$ minutes to download a 9 megabyte program. Whose computer downloads at a greater rate of megabytes per minute?

4. Caitlin travels for $1\frac{1}{3}$ hours to visit a friend who lives $4\frac{1}{2}$ miles away. Martin travels $4\frac{1}{4}$ miles to visit a friend. It takes him $1\frac{1}{5}$ hours to get there. Who travels at a greater rate of miles per hour?

5. Beth drove 45 miles and used $3\frac{3}{4}$ gallons of gas. Martha drove 85 miles and used $5\frac{2}{3}$ gallons of gas. Which driver used fewer gallons of gas per mile?

6. Steve baked $5\frac{1}{2}$ batches of cookies in one and one half hours. Vondra baked $3\frac{1}{3}$ batches of cookies in $\frac{11}{12}$ hour. Which baker made cookies at a greater rate of batches per hour?

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D. Solve each problem by setting up and solving a proportion.

1. The human body is often drawn using specific ratios. The average height of an adult is drawn using 7 head lengths (the height of the head is $\frac{1}{7}$ the total height). If a person in a painting is 63 centimeters tall, how tall is the person's head?

2. The Appalachian Trail is a 2,155-mile hiking trail in the Eastern United States. You plan to hike the section of the trail that is in New Jersey at a rate of 9 miles per day. If the hike will take you 8 days, what is the length of the trail in New Jersey?

3. The average person breathes 35 pounds of air per day. At this rate, how many pounds of air will the average person breathe in seven days?

4. You are on a hockey team. Your time on the ice is 12 minutes per game. A season is twenty games. How many minutes do you play during the season?

5. In an hour, a jogger burns about 4 calories per pound of body weight. How many calories will a jogger who weighs 151 pounds burn in an hour?

6. In the old British money system, 5 shillings was equal in value to 1 crown. Emily had 45 shillings. What was the value in crowns?

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E. Convert each rate.

1. Convert the rate 5 feet per 3 seconds to yards per hour.

2. Convert the rate 1000 fluid ounces per 2 hours to cups per minute.

3. Convert the rate of 10 yards per 5 minutes to feet per hour.

4. Convert the rate of 48 feet per hour to inches per minute.

5. Convert the rate of 12 pints per 15 minutes to quarts per hour.

6. Convert the rate of 48 ounces per 2 hours to pounds per day.

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III. Solving Proportions Using Means and Extremes

A. Solve each problem by setting up and solving a proportion.

1. The Arizona Cardinals won ten games out of sixteen of their games during the 2009 regular season. At this rate, how many games do they need to play to win 50 games?

2. The 18 wind turbines on Windy Hill are enough to meet the electrical needs of all 6 houses on Breezy Lane. How many wind turbines are needed to meet the electrical needs of 26 houses?

3. Between 1990 and 2000, the population of New York City increased at a rate of 32 people every four hours. By how many people would the population have increased in 63 hours?

4. A local survey determined that 4 out of every 10 Internet users have downloaded music at some point. At this rate, out of 60 Internet users, how many have downloaded music?

5. The string that produces the lowest tone on a piano vibrates 87 times in 3 seconds. How many times would this string vibrate in 12 seconds?

6. A 10-ounce package of animal cookies costs $2. What should a 35-ounce package cost, assuming the same cost per ounce?

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B. Solve for each variable using the means and extremes method. Round to the nearest hundredth, if necessary.

1. $\frac{4}{28} = \frac{x}{35}$

2. $12 : 6 = 60 : x$

3. $560 : 80 = x : 300$

4. $\frac{41}{282} = \frac{7}{x}$

5. $\frac{39}{9} = \frac{x}{2}$

6. $74 : 31 = 2 : x$

7. $\frac{x}{3} = \frac{1351}{7}$

8. $26 : x = 117 : 9$

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C. Use the given information to answer each question.

1. Rosa drove 175 miles to visit her grandparents. How many kilometers did she travel?

2. Franco weighs 165 pounds. What is his mass in kilograms?

3. Ronna is making dinner for her family. The recipe she is using calls for 0.5 kilogram of ground chicken. How many pounds of ground chicken does she need?

4. Hector needs to refill his lawn mower gas tank. The tank holds 4.2 liters of gas. How many gallons of gas does the tank hold?

5. Lee is going to compete in a 5000 meter Race Walk. How long is the race in yards?

6. Lavon's favorite basketball player is 2.1 meters tall. How tall is Lavon's favorite basketball player in feet?

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