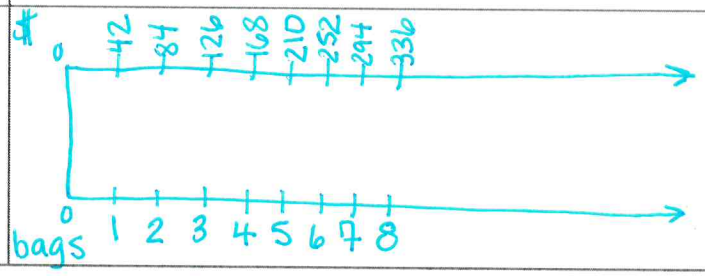
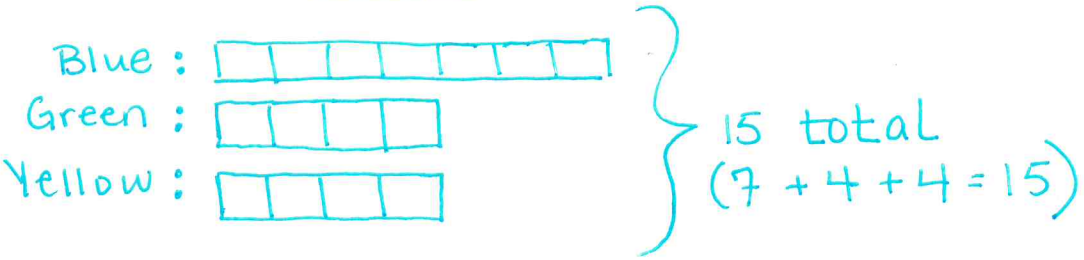
Ratios and Proportions Unit 1: Unit Test-Study Guide

Name:_____ Date:_____Hour:_____

1. Maalak is adding pebbles to the edge of her playground. She orders 6 bags of pebbles for $252. How much would it cost if Maalak orders 8 bags of pebbles instead?

Standard Algorithm	Diagram
$\frac{\$252 \div 6}{6 \text{ bags} \div 6} = \frac{\$42}{1 \text{ bag}} \frac{\cdot 8}{\cdot 8} = \frac{\$336}{8 \text{ bags}}$	

2. The Hachem family has a garden with different colors of flowers. There are 7 blue flowers, 4 green flowers, and 4 yellow flowers.
   a. Draw a tape diagram to model the situation.



   b. What is the ratio of yellow flowers to total flowers? Write the ratio in 3 ways.

Fraction Form	Colon Form	Word/ "to" Form
$\frac{4}{15}$	4:15	4 to 15

3. Sarah sees on a scale that 32 ounces is the same as 2 pounds.
   a. Complete the table to show the number of ounces in different numbers of pounds.
   b. Calculate: What is the unit rate of ounces to pounds? (Use Standard Algorithm)

$\frac{32 \text{ ounces} \div 2}{2 \text{ pounds} \div 2} = \frac{16 \text{ ounces}}{1 \text{ pound}}$ Unit Rate = 16

Number of ounces	16	32	48	64	80	96
Number of pounds	1	2	3	4	5	6

Write a complete sentence to answer the prompt. The unit rate of ounces to pounds is 16 ounces per pound.

4. Jalal buys 15 uniforms for the basketball team. He pays $375 in total.
   a. Write the original ratio that describes the relationship of price to uniforms.

Fraction Form	Colon Form	Word/ "to" Form
$\frac{\$375}{15}$	375 : 15	375 to 15

   b. Calculate the price per uniform.

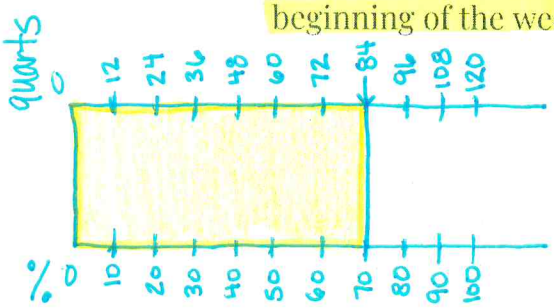
$$\frac{\$375}{15 \text{ uniforms}} \begin{matrix} \div 15 \\ = \\ \div 15 \end{matrix} \frac{\$25}{1 \text{ uniform}}$$

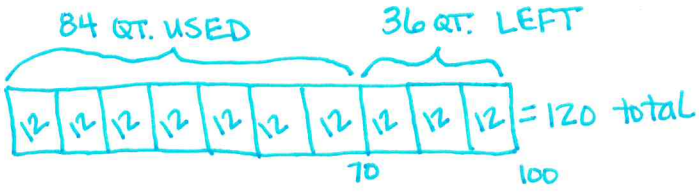
Jalal paid $25 per uniform.

5. Cerina packs 4 pairs of pants, 2 pairs of shorts, and 3 skirts for her vacation. What is the ratio of skirts to pants?

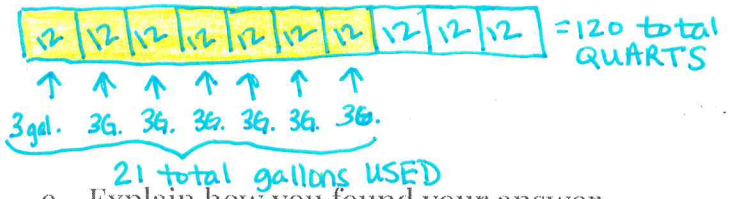
Fraction Form	Colon Form	Word/ "to" Form
$\frac{3}{4}$	3 : 4	3 to 4

6. Nadine's Bakery uses 70% of its syrup in one week. They now have 36 quarts of syrup left, which is 30%.
   a. Create a double number line to find the number of quarts the bakery had at the beginning of the week. → 100%





   b. The bakery started the week with __120__ quarts of syrup.
   c. How many quarts did the bakery use during the week? The bakery used __84__ quarts of syrup.
   d. There are 4 quarts in a gallon. How many gallons of syrup did the bakery use during the week? The bakery used __21__ gallons of syrup during the week.



$$\frac{4 \text{ qts.}}{1 \text{ gallon}} \begin{matrix} \cdot 21 \\ = \\ \cdot 21 \end{matrix} \frac{84 \text{ qts. Used}}{21 \text{ gallons}}$$

   e. Explain how you found your answer.

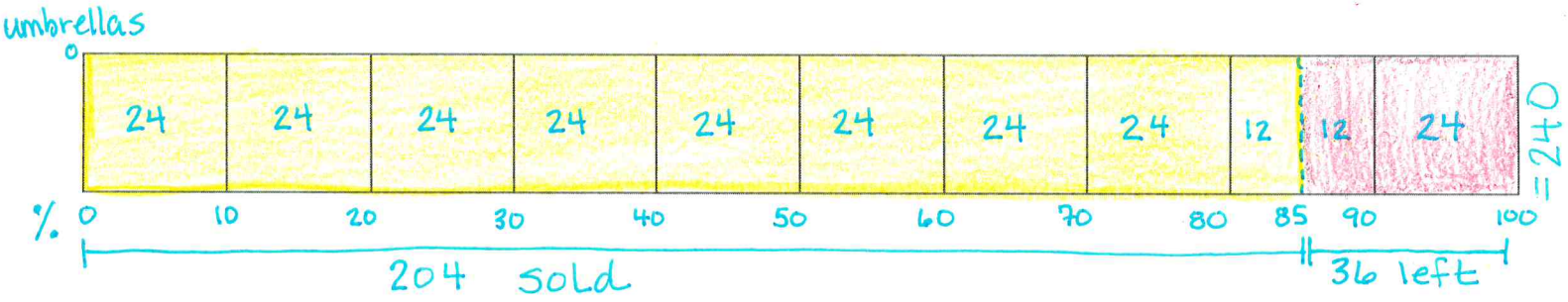
① If 36 = 30%, then 12 = 10%, then 120 = 100%, then 84 = 70%

② If 4 QTS. = 1 GAL. and 84 QTS. were used, then 84 QTS. ÷ 4 QTS. PER GAL. = 21 GALLONS

7. Rana's outdoor store has 240 beach umbrellas on sale. The store sells 85% of the umbrellas by the end of the day.

85% of 240

a. Create a **tape diagram** that represents the situation.



b. How many umbrellas does the store have left? The store has 36 umbrellas left.

c. Write a **numerical expression** that can be used to find how many umbrellas were sold.

* 85% of 240
0.85 x 240
OR $\frac{85}{100} \times 240 =$

d. What percent of the umbrellas does the store have left? The store has 15 % of the umbrellas left.

e. How many umbrellas did the store sell? The store sold 204 umbrellas.

8. Sumayah rides her bike at a steady pace. In 2 hours, she rides 12 miles. $\frac{12 mi \div 2}{2 hrs. \div 2} = \frac{6 mi}{1 hr.}$

a. Fill in the table to represent the relationship between miles and hours.

b.

Miles	6	12	18	24	30
Hours	1	2	3	4	5

c. Calculate: How many miles does she bike per hour?

$\frac{12 \text{ miles} \div 2}{2 \text{ hours} \div 2} = \frac{6 \text{ miles}}{1 \text{ hour}}$

* d. What is the ordered pair that represents hours to miles using the unit rate?

(1, 6)

9. Talia's pet store sells dog food in small bags and large bags. The small bags have 7 pounds of food for $27.93 and the large bags have 20 pounds of food for $66.98.

a. What is the ratio of price to pounds for each type of bag?

Small Bag Ratio	Small Bag Unit Price	Large Bag Ratio	Large Bag Unit Price
$\frac{\$27.93 \div 7}{7 \text{ pounds} \div 7} =$	$\frac{\$3.99}{1 \text{ pound}}$	$\frac{\$66.98 \div 20}{20 \text{ pounds} \div 20} =$	$\frac{\$3.349 \rightarrow \$3.35}{1 \text{ pound}}$

b. Which type of bag is the better buy? Explain.

The large bag is the better buy because $3.35 per pound is cheaper than $3.99 per pound for the small bag.

10. Kamar drives 448 miles on the highway to visit her cousin. She uses cruise control to drive at a constant speed. Kamar travels 192 miles in the first 3 hours. At that rate, how long will the trip take? The trip will take 7 hours.

① Find speed in mph

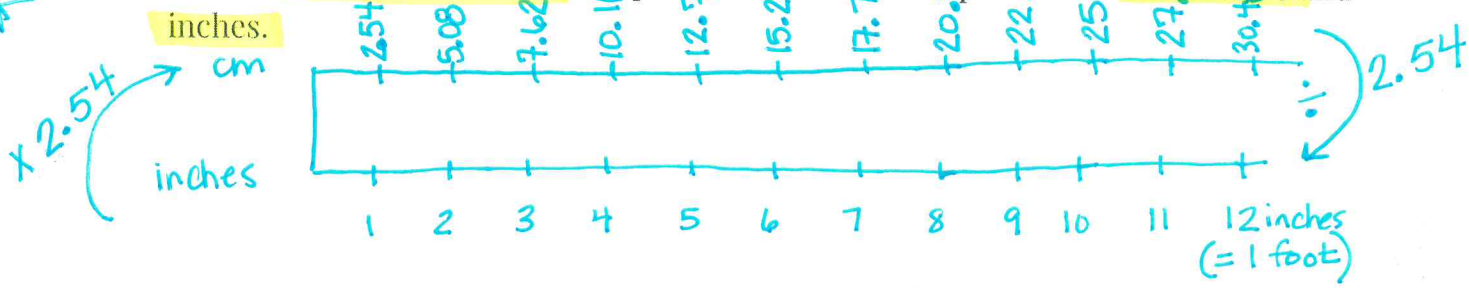
$$\frac{192 \text{ miles} \div 3}{3 \text{ hours} \div 3} = \frac{64 \text{ miles}}{1 \text{ hour}}$$

② Find hours for 448 miles

$$\frac{64 \text{ miles} \cdot 7}{1 \text{ hour} \cdot 7} = \frac{448 \text{ miles}}{7 \text{ hours}}$$

11. Safi knows that there are 30.48 centimeters in ~~1 foot~~ 12 inches.

* a. Draw a double number line to represent the relationship between centimeters and inches.



b. What is the relationship from inches to centimeters? Inches $\underline{\times}$ $\underline{2.54}$ = Centimeters

c. What is the relationship from centimeters to inches? Centimeters $\underline{\div}$ $\underline{2.54}$ = Inches

d. Calculate: What is the unit rate in centimeters per inch?

$$\frac{30.48 \text{ cm} \div 12}{12 \text{ in.} \div 12} = \frac{2.54 \text{ cm}}{1 \text{ in.}}$$

e. Calculate: How many centimeters are in 6 inches?

$$\frac{2.54 \text{ cm} \cdot 6}{1 \text{ in.} \cdot 6} = \frac{15.24 \text{ cm}}{6 \text{ in.}}$$

* f. Calculate: What is the unit rate in inches per centimeter?

$$\frac{12 \text{ in.} \div 30.48}{30.48 \text{ cm} \div 30.48} = \frac{0.3937\ldots}{1 \text{ cm}} \approx \frac{0.39 \text{ in.}}{1 \text{ cm}}$$