AIM: 7-2 I will be able to complete and analyze RATIO TABLES!

Name _____   Date _____

Ms. Piccolo   Math 6 – Period _____

Warm-up: The coed soccer team has four times as many boys on it as it has girls. We say the ratio of the number of boys to the number of girls on the team is __4__ to __1__.

Fill in the table to show other options that represent four times as many boys as girls.

# of boys	# of girls	Total	
4	1	5	→ not enough players
8	2	10	
12	3	15	
16	4	20	

Let's Investigate:

1) Paul has a new job designing websites. He is paid at a rate of $700 for every 3 pages of web content that he builds.

   a) Complete the ratio table below to show the total amount of money Paul has earned to the number of pages he has built.

Total Pages Built	3	6	9	12	15	18
Total $ Earned	700	1400	2100	2800	3500	4200

+3   +700

   b) Paul is saving up for a trip that will cost $4,200. How many web pages will he need to build before he can pay for his trip?

Extend ratio table   **or** $4200 \div 700 = 6$

$\begin{array}{r} 6 \\ \times 3 \\ \hline 18 \end{array}$

18 pages

2) For every 2 laps that Danny ran, Andrew ran 3 laps. Fill-in the ratio table below and then answer the following questions.

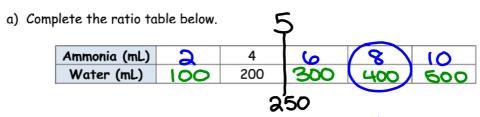| # of laps Danny ran	2	4	6	7	8	10	12
# of laps Andrew ran	3	6	9		12	15	18

9 10 11 12

a) How many laps did Danny run if Andrew ran 18 laps? __12 laps__

Average:
12+9=21
21÷2=10.5

b) How many laps did Andrew run if Danny ran 7 laps? __10.5 laps__

c) What do you notice about the ratios in the table above? Describe the relationship.

The ratios are All equivalent!

$$\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12} \ldots$$

3) Students in a science class are conducting an experiment that requires 200 milliliters of water for every 4 milliliters of ammonia. The table below shows the amount of water needed for various amounts of ammonia.

a) Complete the ratio table below.

5

Ammonia (mL)	2	4	6	8	10
Water (mL)	100	200	300	400	500

250

b) How much water is used for 8 milliliters of ammonia? __400 mL water__

c) How much water is used for 5 milliliters of ammonia? __250 mL water__

d) Explain, in words, how you determined your answer to *part c*.

5 is exactly between 4 and 6, so the number in between 200 and 300 mL of water is 250.

4) Complete each table to find the missing ratios.

a)

+6   +6   +6

6	12	18	24
5	10	15	20

+5   +5   +5

b)

÷2   ÷2   ÷2

96	48	24	12
48	24	12	6

÷2   ÷2   ÷2

5) McCall Middle School orders 15 textbooks for every 12 students. The table below shows this relationship. Using the ratio table, predict the number of textbooks the school would need to order for 72 students.

72

Students	12	24	48	96	192
Textbooks	15	30	60	120	240

?

$$\frac{S}{T} = \frac{12}{15} = \frac{72}{?}$$

×6   ×6

$$×\frac{15}{6}$$ $$\frac{15}{90}$$

Answer: __90__ textbooks

6) Celia can solve three math problems in four minutes.

a) Use the above information to complete the table below.

19 20

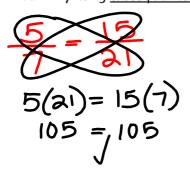| # of Questions	3	6	9	12	15	18	21
# of Minutes	4	8	12	16	20	24	28

25 26 27

Challenge!

b) Celia has dance practice on Thursday evening. She has a half hour before practice to work on her math homework. She has 20 homework questions to complete. How many minutes will Celia have left after completing her math homework? Use your ratio table to help you find the answer!
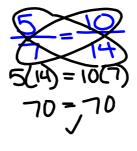
$$\frac{Q}{min} = \frac{3}{4} = \frac{20}{?}$$

$3x = 20(4)$

$\frac{3x}{3} = \frac{80}{3}$

$x = 26\frac{2}{3} ≈ 27$ min.

$\begin{array}{r} 30 \\ -27 \\ \hline 3 \end{array}$

Celia has approximately 3 minutes left.

3

7) **Part a:** Assume the table below is a table of equivalent ratios. Fill in the missing values.

5	7
10	14
15	21
20	28
25	35
30	42

Part b: Show that the ratio 5:7 is equivalent to one of the ratios in the table by using <u>cross products</u>.

$$\frac{5}{7} = \frac{15}{21}$$

$$5(21) = 15(7)$$
$$105 = 105 \checkmark$$

$$\frac{5}{7} = \frac{10}{14}$$

$$5(14) = 10(7)$$
$$70 = 70 \checkmark$$

Part c: Write a real-world story (word problem) that could be used to describe the ratio table.

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<u>Exit ticket</u>: Is it possible to fix the mix-up to make grandma happy?

We can't do 5 red to 1 white because we already have 5 white scoops in the pan.
Is there another equivalent ratio we can use?

a) Complete the ratio table below to determine the correct ratio of *red to white paint.*

(5:1)

RED	WHITE
5	1

b) How many scoops of red paint does he need to make the correct color, with a ratio of 5 red to 1 white?

c) Write the new ratio of *red to white paint* below.

Ratio: _____

d) Explain how you know that your new ratio is equivalent to 5:1. You may write your explanation in words **OR** use cross products.