

Ms. Wang

Homework Algebraic Reasoning

Name \_\_\_\_\_

Date \_\_\_\_\_ Class \_\_\_\_\_

**1) Please show your work. If no work is shown, you will only receive 50% credit.**

**A) Determine whether the ratios are equivalent (4 pts each).**

1. \_\_\_\_\_  $20 : 4$  and  $10 : 2$
2. \_\_\_\_\_  $22 : 35$  and  $14 : 30$
3. \_\_\_\_\_  $5 : 8$  and  $10 : 16$
4. \_\_\_\_\_  $14 : 8$  and  $24 : 16$
5. \_\_\_\_\_  $12 : 2$  and  $6 : 4$

**B) Ratio Word Problems. (8 pts each).**

6. The ratio of four numbers is  $2 : 3 : 5 : 7$ . The sum of the numbers is 136. What are the numbers?

7. The ratio of girls to boys in a school ground is 9 to 4. There are a total of 45 girls in the ground.

a) How many boys are there altogether?

b) What's the ratio of girls to all students?

8. The juice to sparkling water ratio is  $2 : 5$ . You want 63 cups in all.

a) Draw Tape Diagrams

b) How much juice and how much sparkling water will you need for the 63 cups?

9. You are trying to gain muscle and need to consume more protein every day. If you have a protein shake that contains 31 grams and the entire shake is 248 grams.

a) What percentage of the entire shake is non-protein?

b) What is the ratio between grams of protein and grams of non-protein?

10. You run 30 feet every 8 seconds. Your friend runs 36 feet every 9 seconds. Are you and your friend running at the same pace? If not, who is faster? Explain.

**C. Ratio Table (5 pts each)**

11.

x	20		40	
y	4	8		3

12.

7	9
	18
28	
	45

**D. Solve each inequality and graph its solution (5 pts each).**

13.  $y+9 < 11$

14.  $9-y < 11$

**E. Solve each equation (5 pts each).**

15.  $\frac{x}{4} = 17$

16.  $-7m = 4$

17.  $6 + m = 11$

18.  $9 - m = 10$