Take-home Enrichment Option Unit #7 (14 pts) Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_

**Option 1: Complete the following practice problems, showing all work, then take the enrichment test at the end of the unit. Pg. 244 (24–29), Pg. 248 (33–39) odd, Pg. 251 (26-27), Pg. 258 (18-19). Your solutions to these problems should be turned in when you take the test.**

**Option 2: Complete the activities described on this sheet as a take-home enrichment assignment.**

**1-2 Solve the following and write the geometric justification for your solution process (use as much terminology as possible). This means you must show AND explain all work. (3 pts each)**

**1.)** Find the value of x and y from the proportion below.

 $\frac{y}{x-9}=\frac{4}{7}$ $\frac{x+y}{x-y}=\frac{5}{3}$

**2. The ratio of the 5 angles of a pentagon are in the ratio of 3:3:6:7:8. Find the measure of the smallest angle.**

**3.) (3 points) You want to put up a basketball hoop in your backyard. Regulation height for the basketball hoop is 10 feet. After a couple of attempts at guessing the correct height and checking, you decide to use shadows to estimate the height. You are 5 feet 8 inches tall and your shadow is 5 feet 2 inches long. You are standing 3 feet 5 inches from the pole and the tip of your shadow coincides with the tip of the basketball hoop’s shadow.**

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 **a) Draw and label a diagram representing this situation.**

 **b) Are the triangles similar? If so state the postulate or theorem that justifies your**

 **answer.**

 **c) How high did you hang the hoop? Round your answer to the nearest inch.**

 **d) Is the basketball hoop currently at regulation height? If no, how much farther does**

 **it need to be raised?**

**4.)** (2 points) Write a short paragraph giving the similarities and differences between congruent figures and similar figures.