

35 points

Use the diagram to the right for questions 1 – 4, where  $ABCD \sim WXYZ$ . Show any work used to solve.  
(1 point for each blank)

1. What is the simplified common ratio from ABCD to WXYZ?

Common Ratio: \_\_\_\_\_

2. Find the measure of  $\angle W$ .

$m\angle W$ : \_\_\_\_\_

3. Find the value of x.

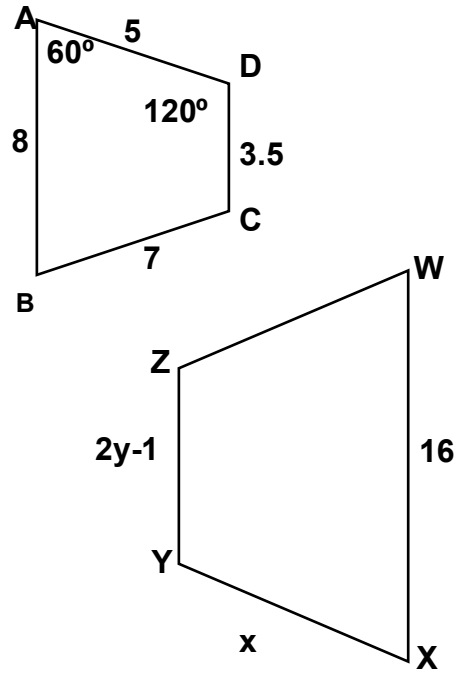
Proportion: \_\_\_\_\_

x: \_\_\_\_\_

4. Find the value of y.

Proportion: \_\_\_\_\_

y: \_\_\_\_\_

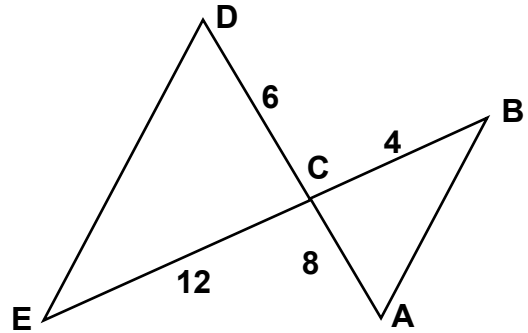


5. Using the diagram to the right, (4 points)

a. Are the triangles similar?

YES    CANNOT BE DETERMINED    NO

b. Explain your answer to part a. Show evidence to support your explanation.



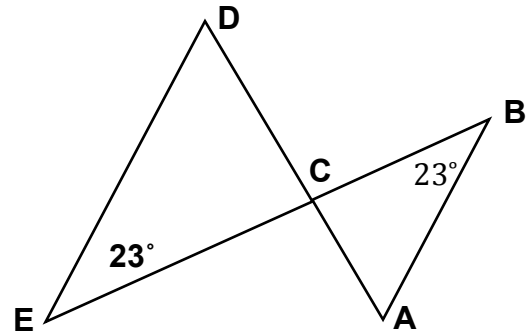
c. Write the similarity statement **only** if the triangles are similar:  $\Delta$  \_\_\_\_\_  $\sim$   $\Delta$  \_\_\_\_\_

6. The diagram to the right applies to this item. (4 points)

a. Are the triangles similar?

YES    CANNOT BE DETERMINED    NO

b. Explain your answer to part a. Show evidence to support your explanation.



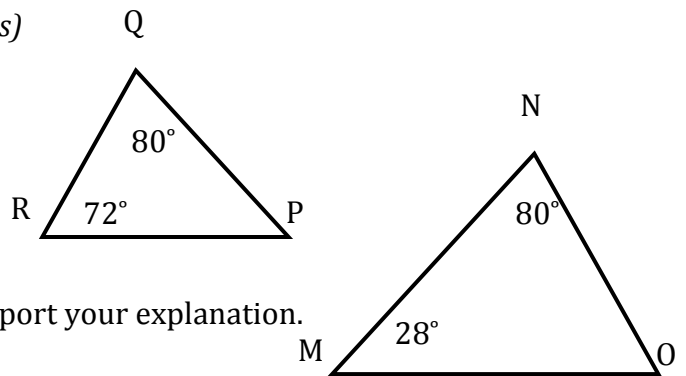
c. Write the similarity statement **only** if the triangles are similar:  $\triangle$  \_\_\_\_\_  $\sim$   $\triangle$  \_\_\_\_\_

7. The diagram to the right applies to this item (4 points)

a. Are the triangles similar?

YES    CANNOT BE DETERMINED    NO

b. Explain your answer to part a. Show evidence to support your explanation.

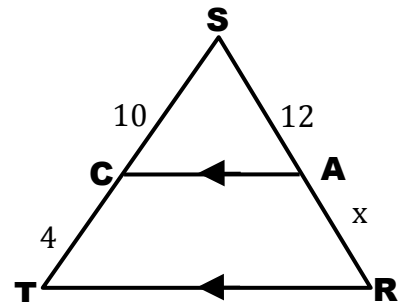


c. Write the similarity statement **only** if the triangles are similar:  $\triangle$  \_\_\_\_\_  $\sim$   $\triangle$  \_\_\_\_\_

8. Solve for x, using the diagram to the right. Write the proportion and show your work. (2 points)

proportion: \_\_\_\_\_

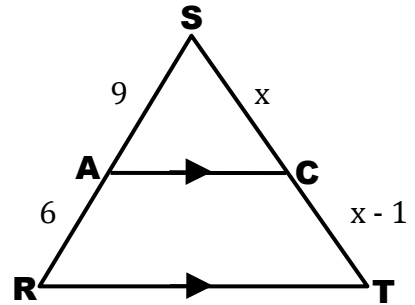
x = \_\_\_\_\_



9. Solve for  $x$ , using the diagram to the right. Write the proportion and show your work. (3 points)

proportion: \_\_\_\_\_

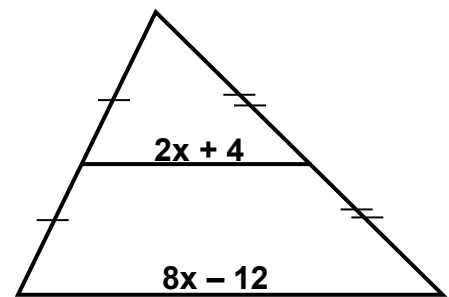
$x =$  \_\_\_\_\_



10. Solve for  $x$ . Write the equation and show your work. (3 points)

Equation: \_\_\_\_\_

$x =$  \_\_\_\_\_



11. Ana Pau is 5 feet tall. When she casts a 20 foot shadow, a telephone post casts a 84 foot shadow. Make a drawing of the situation, write a proportion, and find the height of the telephone post. (4 points)

proportion: \_\_\_\_\_

height of post: \_\_\_\_\_

12. Mauricio is standing looking into a mirror that is on the ground between him and a flagpole. He sees the top of the flagpole in the mirror. The distance from his feet to his eyes is 6 feet. The distance from the middle of his feet to the center of the mirror is 10 feet. The base of flagpole is 55 feet from the center of the mirror. Make a drawing of the situation, write a proportion, and find the height of the flagpole. (3 points)

proportion: \_\_\_\_\_

height of flagpole: \_\_\_\_\_

13. Explain how you know that the two triangles drawn in item #12 above are similar. (2 points)

**Bonus:** (+2 points for each question)

14. The sum of 3 angles is  $99^\circ$ . The middle sized angle is 2 times larger than the smallest angle. The smallest angle has a 2:5 ratio with the largest angle. Find the measures of the three angles. Show your work.

15. True or false? Briefly explain why.

A. All rhombi are similar.

B. All squares are similar.

**Total Score:**

**/35**