**U5-1 NOTES Similar Figures**

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_

**Similar Figures:**

**Corresponding Sides and Angles:**

**Proportional:**

**In the triangle below, the ratios or relationship between the sides can be described as follows:**

**5**

 **3 : 4 : 5**

**4**

**3**

**In order for another triangle to be proportional to this one, its sides would have to maintain the same relationship. For example look at the following triangle. If I set up the relationship for this triangle and then reduce it by a common factor, what happens?**

**15**

**9**

**12**

**Try this:**

**EXAMPLE 1: Compare the sides below and prove or disprove if these triangles are similar using the side relationships.**

 **8 cm 20 cm**

 **6 cm 2 cm**

 **15 cm 5 cm**

**EXAMPLE 2: Compare the triangles below and prove or disprove if these triangles are similar using the side relationships.**

 **14 in 24 in**

 **10 in 15 in**

 **12 in**

 **18 in**

Another way we could look at these triangles is to compare corresponding sides between the triangles. The triangles below have corresponding angles that are congruent too. Complete the following statements about triangle ABC and triangle MNP.

 corresponds to \_\_\_\_\_\_  corresponds to \_\_\_\_\_\_

 corresponds to \_\_\_\_\_\_ corresponds to \_\_\_\_\_\_\_

A

 **So the corresponding ratios between these triangles**

14

10

 **would be:**

As cross-products:

 ** and  ; Written as  =  ; 10 x 21 = 14 x 15**

16

M

C

B

 **210 = 210**

 **STATEMENT:**

15

21

So you can also use this method to prove if two

P

N

24

 shapes are similar. \*REMEMBER that two shapes

 are simliar if their corresponding sides are

 proportional.

We can use this same technique to find the missing side when we are told that two shapes are similar. Try to find the missing pieces in the figures below:

Triangle ABC is similar to triangle XYZ. Can you find the value of *x*?

45⁰

***X=?***

45⁰

60 in

27 in

36 in

900

90

18 in

24 in

The two rectangles are similar. Find the missing side. Can you find more than one way to find the missing side?

5 ft

9 ft

***X=?***

18 ft

**What if there is a binomial? How can you solve for x?**

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