

Questions on 6.3 HW?

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Solve each proportion. Show your work and check your solution.

1. $\frac{3}{4} = \frac{x}{20}$
 $3 \cdot 20 = 4x$
 $60 = 4x$
 $15 = x$

2. $\frac{x}{7} = \frac{18}{21}$

3. $\frac{3}{6} = \frac{8}{x}$

4. $\frac{9}{c} = \frac{6}{10}$

5. $\frac{3}{4} = \frac{(b+3)}{20}$

6. $\frac{7}{12} = \frac{a}{24}$

7. $\frac{a}{2} = \frac{13}{20}$

8. $\frac{3}{(b+2)} = \frac{6}{5}$

9. $\frac{\sqrt{3}}{2} = \frac{\sqrt{12}}{c}$
 $\frac{\sqrt{3} \cdot c}{\sqrt{3}} = \frac{2\sqrt{12}}{\sqrt{3}} = 2\sqrt{\frac{12}{3}}$
 $c = 2\sqrt{4} = 2 \cdot 2 = 4$

Set
 Topic: Proving similarity

Provide an argument to prove each conjecture, or provide a counterexample to disprove it.

10. All right triangles are similar

11. All regular polygons are similar to other regular polygons with the same number of sides.

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12. The polygons on the grid below are similar. 13. The polygons on the grid below are similar.

*center of dilation;
similar
polygons*

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16.

17.

Go

Topic: Ratios in dilated polygons

For each pair of similar polygons give three ratios that would be equivalent.

18.

19.

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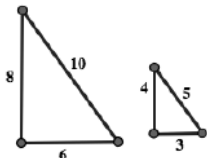
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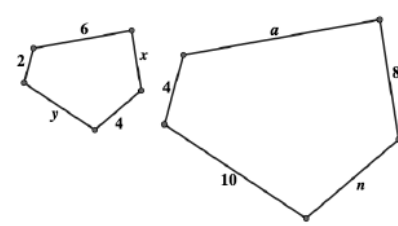
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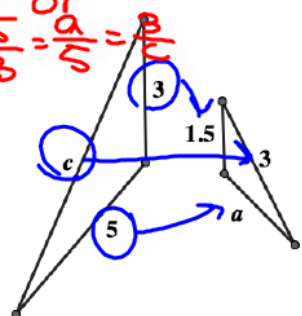
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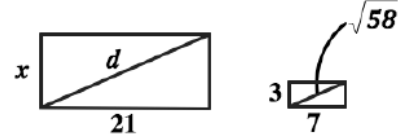
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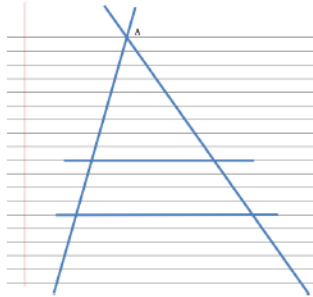
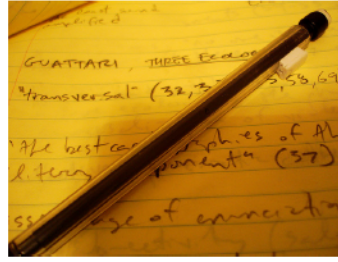
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6.4 Cut By a Transversal

A Solidify Understanding Task

Draw two intersecting transversals on a sheet of lined paper, as in the following diagram. Label the point of intersection of the transversals A. Select any two of the horizontal lines to form the third side of two different triangles.



1. What convinces you that the two triangles formed by the transversals and the horizontal lines are similar?

2. Label the vertices of the triangles. Write some proportionality statements about the sides of the triangles and then verify the proportionality statements by measuring the sides of the triangles.

3. Select a third horizontal line segment to form a third triangle that is similar to the other two. Write some additional proportionality statements and verify them with measurements.

1) $\triangle ABC \sim \triangle ADE$,
 b/c AA ~ (angle-angle ~)

2) $\frac{AB}{AD} = \frac{BC}{DE}$
 $\frac{23.8}{0.5316} = \frac{34cm}{6.2cm} = \frac{3.9cm}{7cm} \rightarrow 24.57$

either 1: check cross-products
 or 2: turn fractions into decimals to see if really proportional

2) cont'd:
 same \triangle $\frac{AC}{AE} = \frac{BC}{DE}$, $\frac{AB}{AD} = \frac{AC}{AE}$

③ $\frac{AF}{AD} = \frac{AG}{AE}$, $\frac{FG}{BC} = \frac{AG}{AC}$

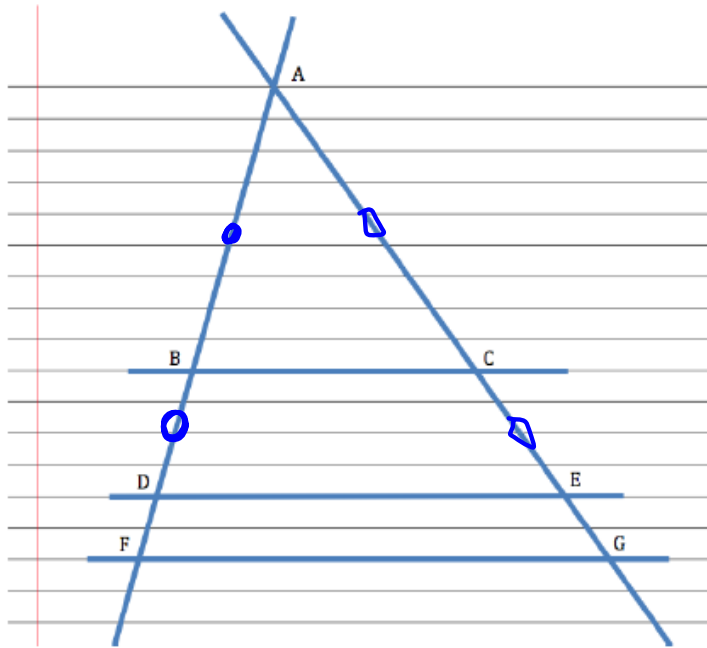
$\frac{9}{6.2} = \frac{9.8}{6.8}$

\downarrow \downarrow

1.4516 1.4412

Tristan has written this proportion for question 3, based on his diagram: $\frac{BD}{AB} = \frac{CE}{AC}$

Tia thinks Tristan's proportion is wrong, because some of the segments in his proportion are not sides of a triangle.



4. Check out Tristan's idea using measurements of the segments in his diagram at the left.

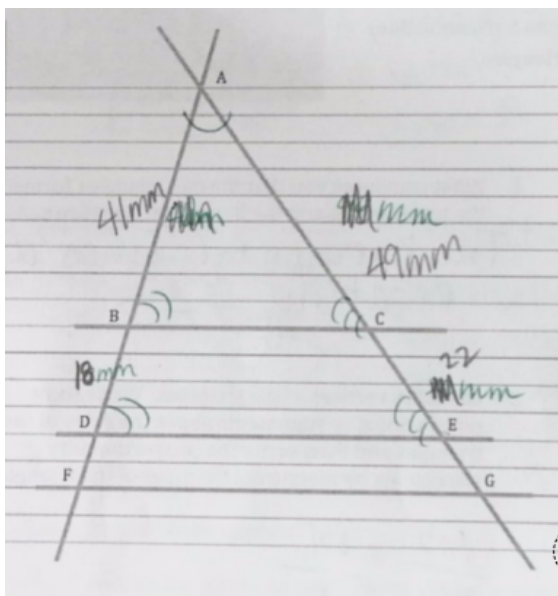
5. Now check out this same idea using proportions of segments from your own diagram. Test at least two different proportions, including segments that do not have A as one of their endpoints.

6. Based on your examples, do you think Tristan or Tia is correct?

Tia still isn't convinced, since Tristan is basing his work on a single diagram. She decides to start with a proportion she knows is true: $\frac{AD}{AB} = \frac{AE}{AC}$. (Why is this true?)

Tia realizes that she can rewrite this proportion as $\frac{AB + BD}{AB} = \frac{AC + CE}{AC}$ (Why is this true?)

Can you use Tia's proportion to prove algebraically that Tristan is correct?



Homework

Finish 6.4 "Ready, Set, Go"