Geometry BELL WORK

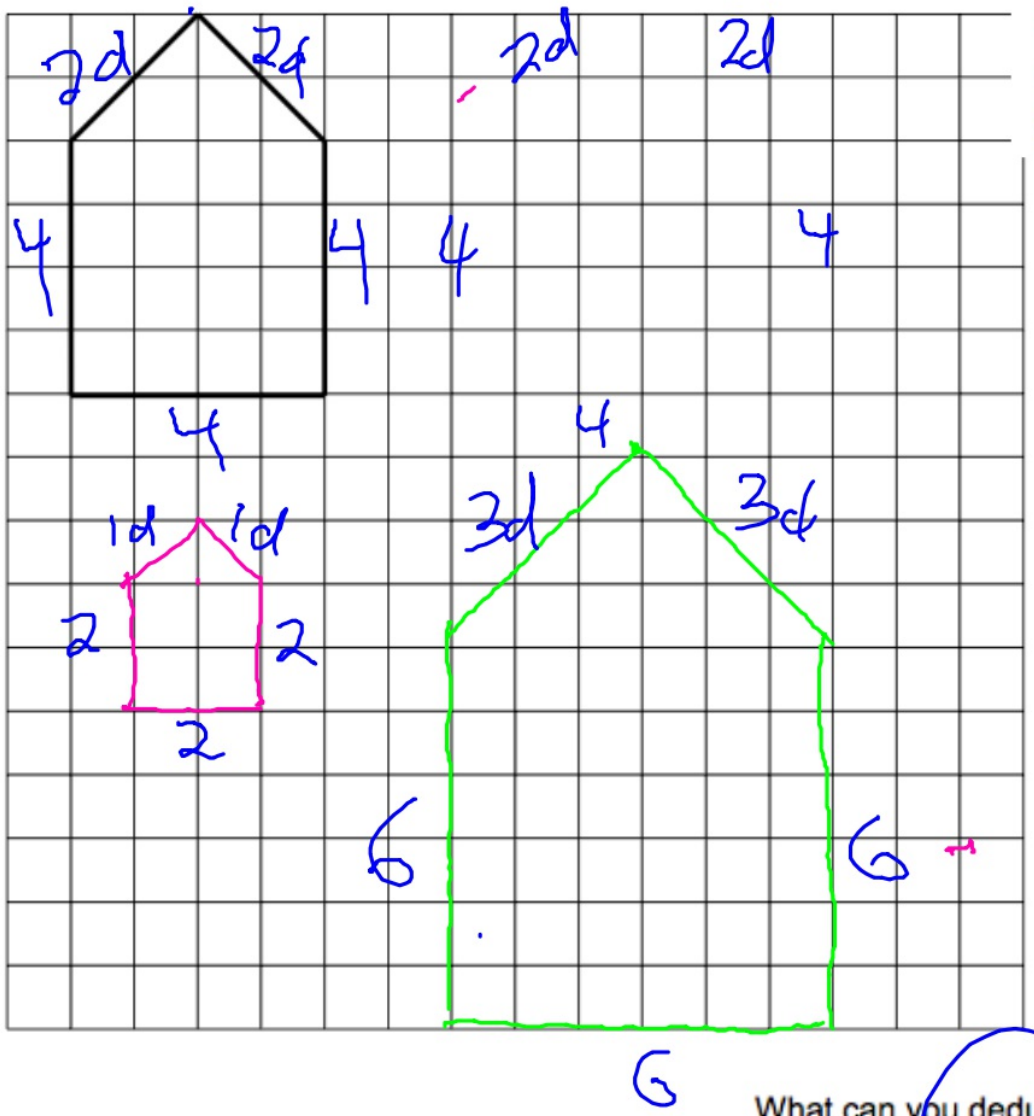
Draw three similar houses.

The three houses that you draw must have different sizes:

(a) one house must be the same size as the house drawn below

(b) one house must be smaller

(c) one house must be larger



$$\frac{2d}{3d} = \frac{4}{6}$$

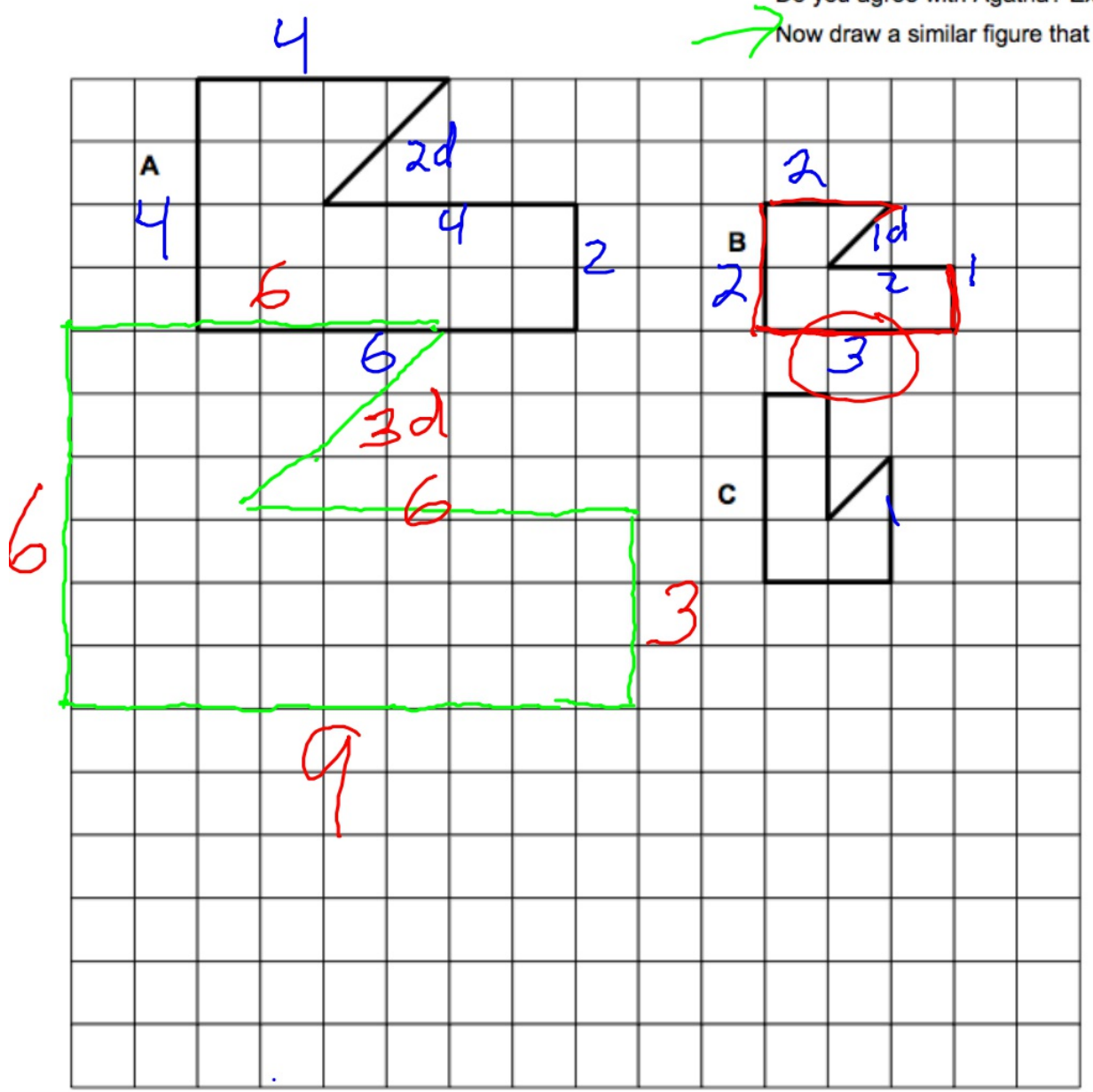
What can you deduce about the angles and the sides of similar figures?

Bingo draws the figures A, B and C on the square grid below and shows them to his friend, Agatha.

Agatha says that only figures A and B are similar.

Do you agree with Agatha? Explain why you agree with her or not.

Now draw a similar figure that is three times the size of figure B.



A ~ B

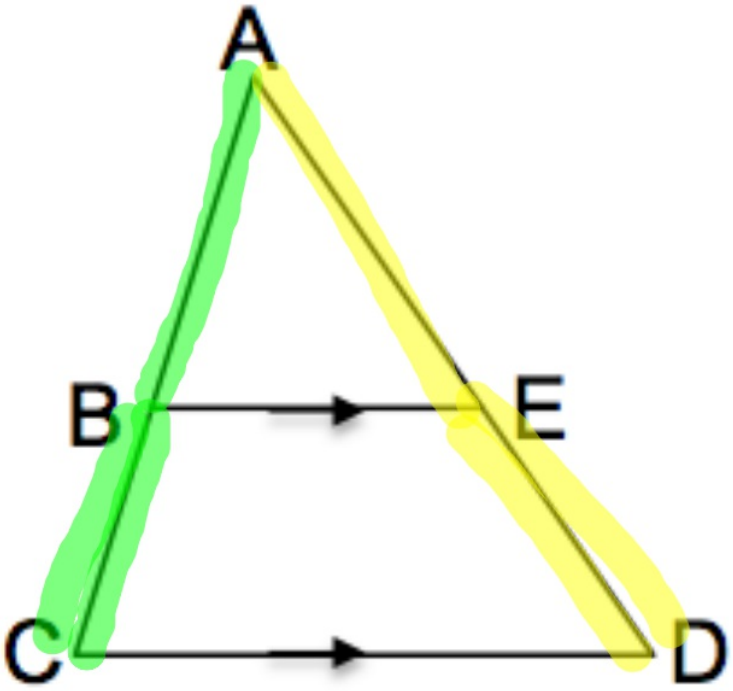
C is the flip of B

B ~ C

7-4 Parallel Lines and Proportional Parts

Today you will: Use proportional parts within triangles and use proportional parts with parallel lines.
Content standard: G-SRT Similarity: Understand similarity in terms of similarity transformations

Triangle Proportionality Theorem - if a line is **parallel** to 1 side of a triangle and intersects the other 2 sides in 2 distinct points, then it separates these **sides** into **segments of proportional length**.

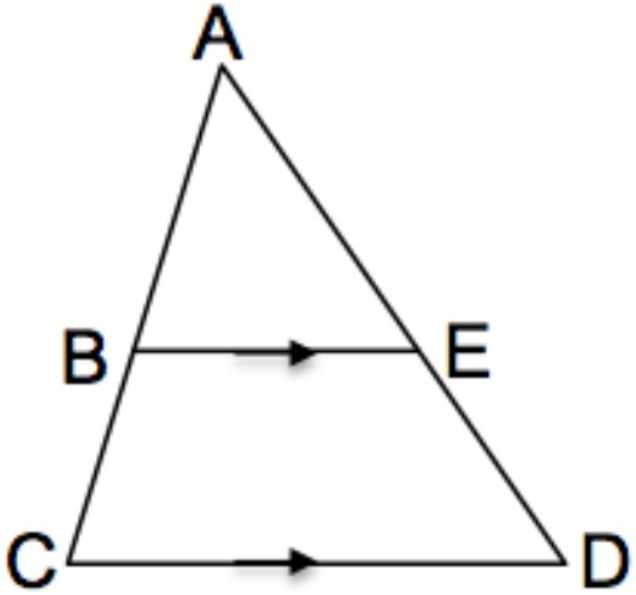


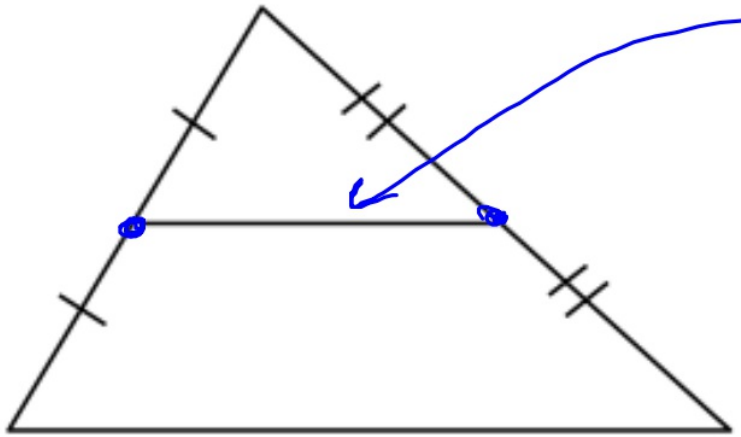
$$\frac{AB}{BC} = \frac{AE}{ED}$$

Converse of Triangle Proportionality

Theorem - if a line **intersects** 2 sides of a triangle and separates the sides into **corresponding segments of proportional lengths**, then the line is **parallel** to the 3rd side.

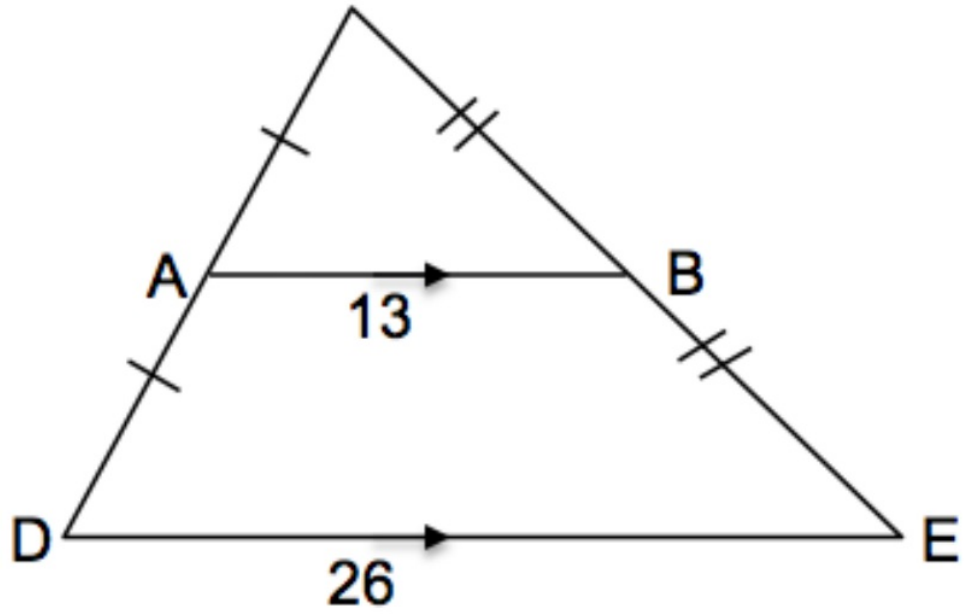
$$\frac{AB}{BC} = \frac{AE}{ED}$$





A **midsegment** connects the midpoints of two sides.

Triangle Midsegment Theorem - a **midsegment** of a triangle is **parallel** to one side of the triangle & its **length** is **1/2** the length of that side.

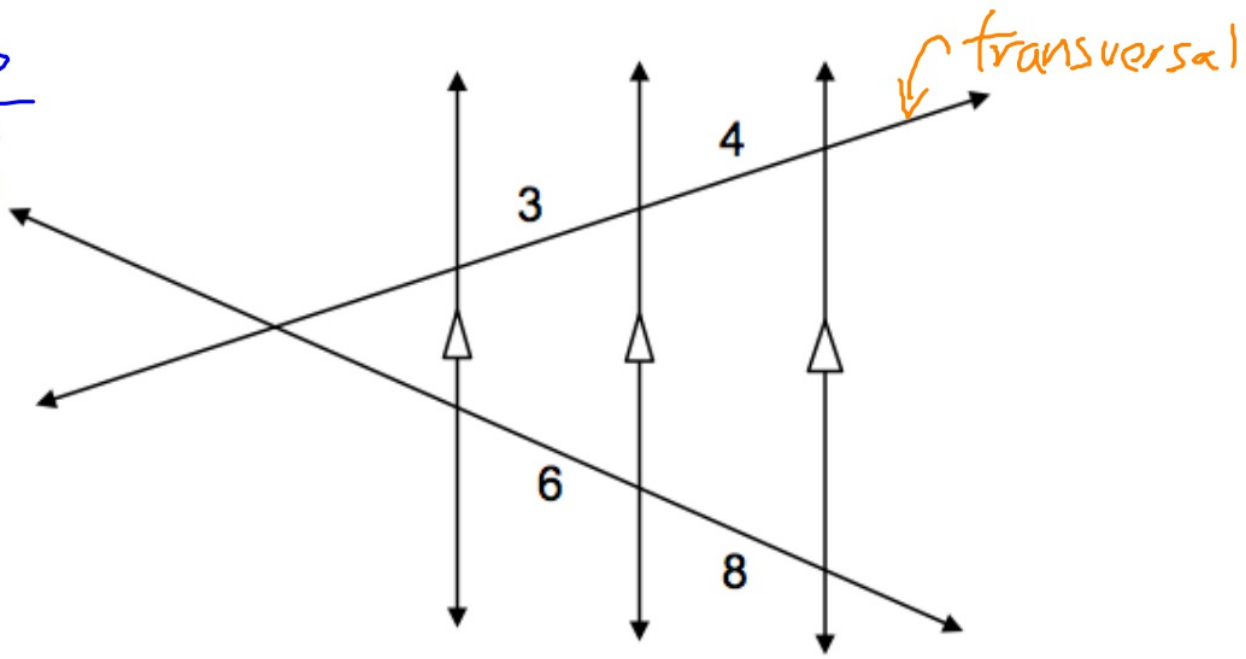


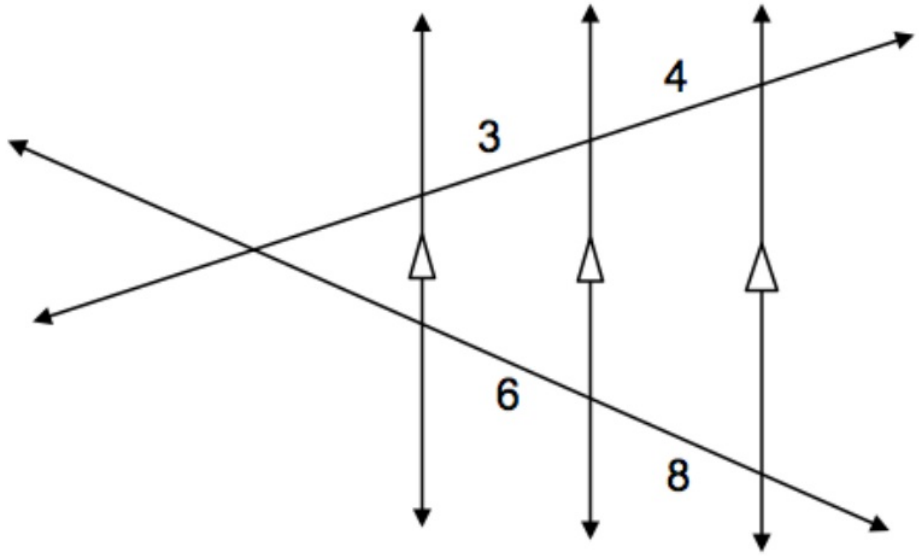
$$AB = \frac{1}{2}DE$$

If **3** or **more parallel lines** intersect **2 transversals**, then they cut off the transversals **proportionally**.

$\frac{3}{4} = \frac{6}{8}$

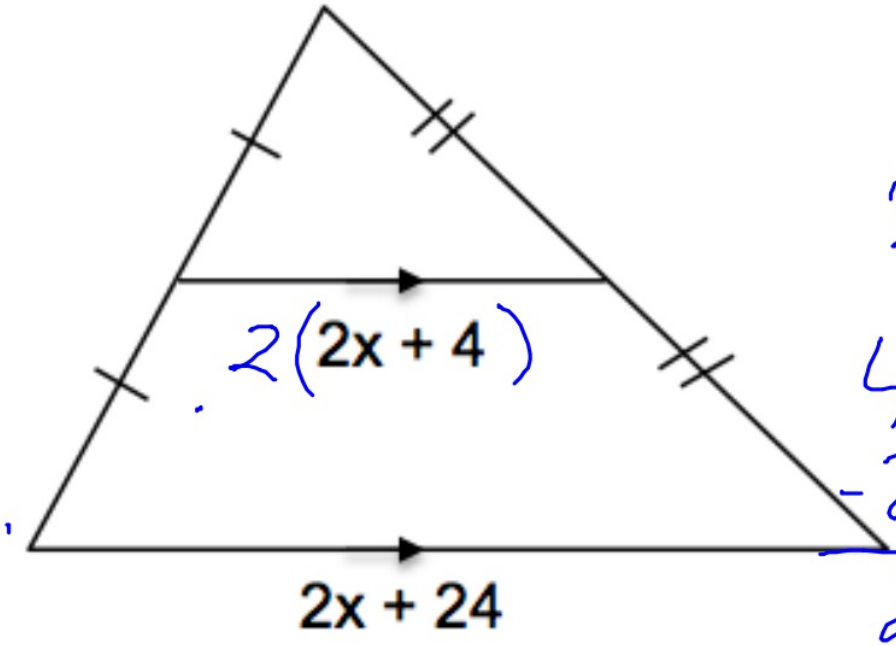
$\frac{3}{6} = \frac{4}{8}$





If **3** or **more parallel lines** cut off **congruent segments** on one transversal, then they cut off **congruent segments** on every transversal.

Solve for x.



$2(2x+4) = 2x+24$

$4x+8 = 2x+24$

$-2x \quad -2x$

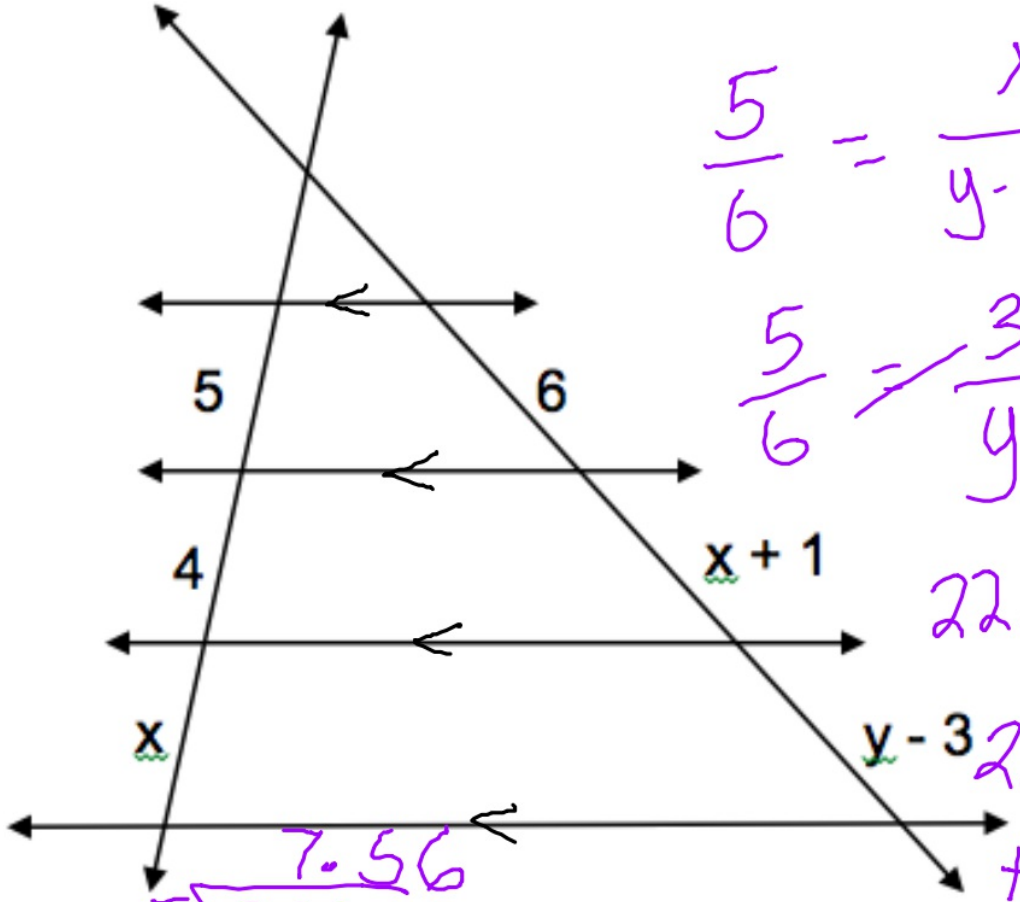
$2x+8 = 24$

$-8 \quad -8$

$\frac{2x}{2} = \frac{16}{2}$

$x = 8$

Solve for x & y.



$\frac{5}{6} \neq \frac{4}{x+1}$

$24 = 5(x+1)$

$24 = 5x + 5$

$-5 \quad -5$

$19 = 5x$

$\frac{19}{5} = \frac{5x}{5}$

$3\frac{4}{5} = x$

$\therefore 3.8 = x$

$\frac{5}{6} = \frac{x}{y-3}$

$\frac{5}{6} = \frac{3.8}{y-3}$

$22.8 = 5(y-3)$

$22.8 = 5y - 15$

$+15 \quad +15$

$37.8 = 5y$

$\frac{37.8}{5} = \frac{5y}{5}$

$y = 7.56$

7.56

$5\overline{)37.8}$

35

28

25

Assignment: Ch 7 mid chapter "quiz":

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