

Questions on 6.7 HW?

conclusions. Give your reasoning for the triangles you pick to be similar and congruent.

$\triangle B \cong \triangle G$   
 $\triangle B \sim \triangle G$   
 $\triangle D \cong \triangle H$   
 $\triangle D \sim \triangle H$

Triangle A, Triangle B, Triangle C, Triangle D, Triangle E, Triangle F, Triangle G, Triangle H

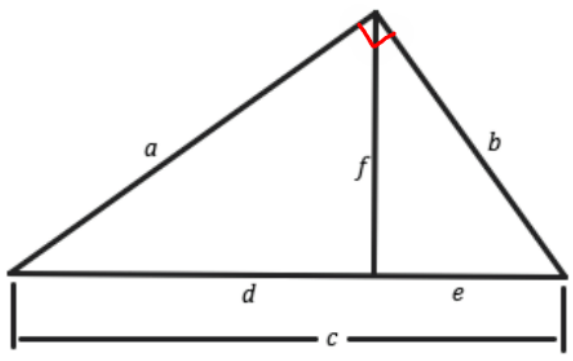
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**Use the given right triangles with altitudes drawn to the hypotenuse to correctly complete the proportions.**



2.  $\frac{a}{c} = \frac{f}{?}$

3.  $\frac{a}{f} = \frac{c}{?}$

4.  $\frac{a}{b} = \frac{f}{?}$

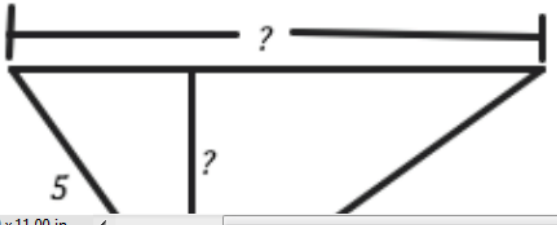
5.  $\frac{a}{d} = \frac{c}{a}$

6.  $\frac{f}{d} = \frac{e}{f}$

7.  $\frac{b}{c} = \frac{e}{b}$

**Find the missing value for each right triangle with altitude.**

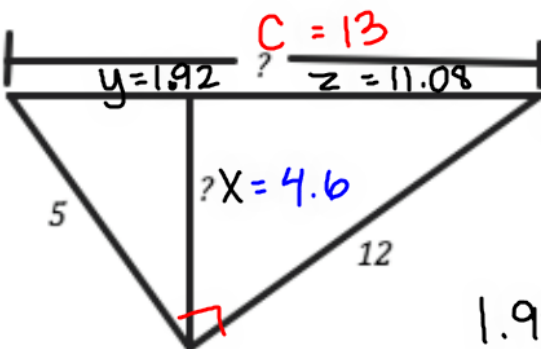
8.



8.50 x 11.00 in

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8.

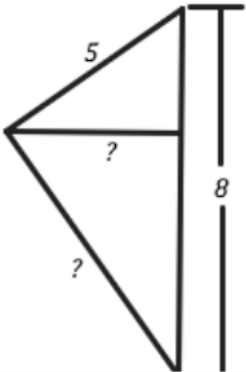


$C = 13$   
 $y = 1.92$  ?  $z = 11.08$   
 $5$   $12$   
 $? X = 4.6$   
 $\frac{5}{13} = \frac{x}{5}$   
 $\frac{25}{13} = \frac{13x}{13}$   
 $1.92 \approx \frac{12}{13} = y$

$5^2 + 12^2 = C^2$   
 $25 + 144 = C^2$   
 $\sqrt{169} = \sqrt{C^2}$   
 $13 = C$

$\frac{x}{1.92} = \frac{11.08}{x}$   
 $x^2 = 11.08(1.92)$   
 $\sqrt{x^2} = \sqrt{21.27}$   
 $x = 4.6$

9.



$5$   
 $8$   
 $13$   
 $x$

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**In each problem determine the desired values using the similar triangles parallel lines and proportional relationships. Write a proportion and solve.**

10. 11.

$\frac{10}{5} = \frac{14}{x}$   
 $70 = 10x$   
 $x = 7$

Analyze each table below closely and determine the missing values based on the given information and values in the table.

12. An *Arithmetic Sequence*

Term	1	2	3	4
Value	7			22

13. A *Geometric Sequence*

Term	1	2	3	4

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Analyze each table below closely and determine the missing values based on the given information and values in the table.

*+ or - same # each time*  $7+3x=22$   $22-7=15$   
 $7+x+x+x=22$

12. An Arithmetic Sequence

Term	1	2	3	4
Value	7	12	17	22

*or: by the same # each time*  $7 \cdot x \cdot x \cdot x = 56$   
 $7x^3 = 56$   
 $x^3 = 8$   
 $x = 2$

13. A Geometric Sequence

Term	1	2	3	4
Value	7	14	28	56

14. An Arithmetic Sequence

Term	5	6	7	8
Value	10			43

15. A Geometric Sequence

Term	7	8	9	10
Value	3			24

## 6.8 Are Relationships Predictable?

### A Develop Understanding Task

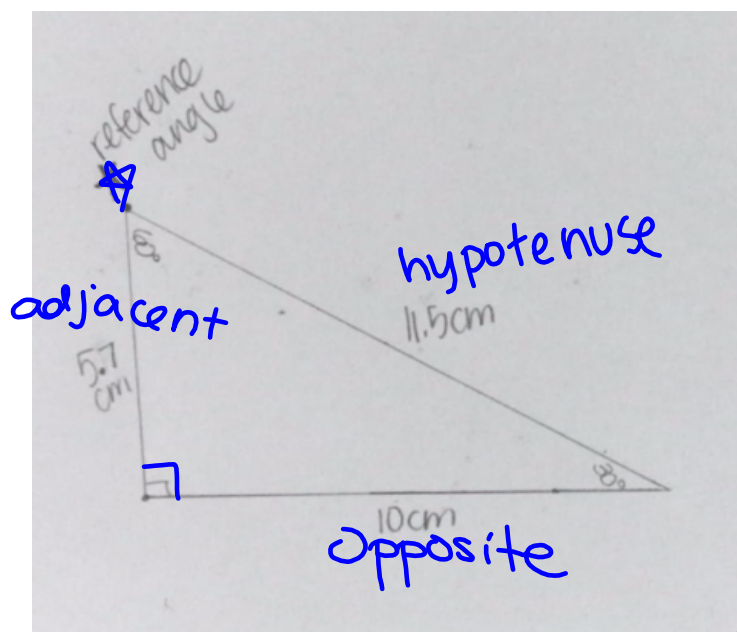


- In your notebook draw a right triangle with one angle of  $60^\circ$ . Measure each side of your triangle as accurately as you can with a centimeter ruler. Using the  $60^\circ$  angle as the **angle of reference** list the measure for each of the following:

Length of the **adjacent** side:

Length of the **opposite** side:

Length of the **hypotenuse**:



- Create the following ratios using your measurements:

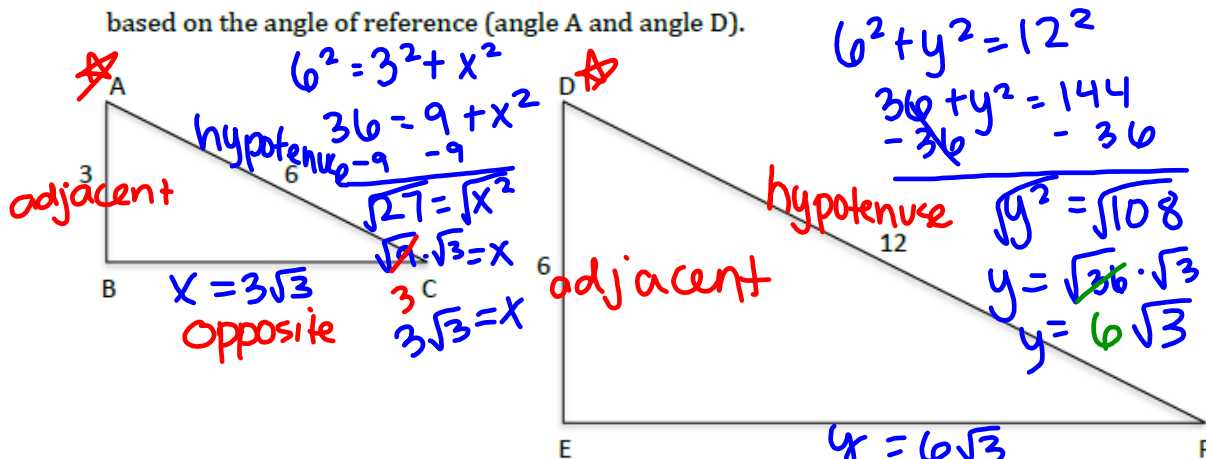
$$\frac{\text{opposite side}}{\text{hypotenuse}} = \frac{10}{11.5} = 0.869565 \quad \frac{\text{adjacent side}}{\text{hypotenuse}} = \frac{5.7}{11.5} = 0.49565$$

$$\frac{\text{opposite side}}{\text{adjacent side}} = \frac{10}{5.7} = 1.7544$$

- Compare your ratios with others that had a triangle of a different size. What do you notice? Explain any connections you find to others' work?

Should be pretty close...

4. In the right triangles below find the missing side length and then create the desired ratios based on the angle of reference (angle A and angle D).



List the ratios for  $\triangle ABC$  using angle A as the angle of reference.

$$\frac{\text{opposite side}}{\text{hypotenuse}} = \frac{3\sqrt{3}}{6} = \frac{\sqrt{3}}{2}$$

$$\frac{\text{adjacent side}}{\text{hypotenuse}} = \frac{3}{6} = \frac{1}{2}$$

$$\frac{\text{opposite side}}{\text{adjacent side}} = \frac{3\sqrt{3}}{3} = \sqrt{3}$$

List the ratios for  $\triangle DEF$  using angle D as the angle of reference.

$$\frac{\text{opposite side}}{\text{hypotenuse}} = \frac{6\sqrt{3}}{12} = \frac{\sqrt{3}}{2}$$

$$\frac{\text{adjacent side}}{\text{hypotenuse}} = \frac{6}{12} = \frac{1}{2}$$

$$\frac{\text{opposite side}}{\text{adjacent side}} = \frac{6\sqrt{3}}{6} = \sqrt{3}$$

5. What do you notice about the ratios from the two given triangles? How do these ratios compare to the ratios from the triangle you made on the previous page?

6. What can you infer about the angle measures of  $\triangle ABC$  and  $\triangle DEF$ ? Explain?

7. Why do the relationships you have noticed occur?

8. What can you conclude about the ratio of sides in a right triangle that has a  $60^\circ$ ? Would you think that right triangles with other angle measures would have a relationship among there ratios?



# Homework

Finish 6.8 "Ready, Set, Go"