

Good morning!

1. "Here"
2. Go over some homework problems
3. Notes on Right Triangle Trig: Ratios
4. Practice
5. Homework is on DeltaMath!

Geometry

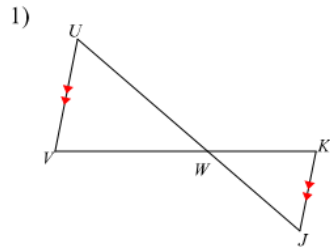
Name \_\_\_\_\_ ID: 1

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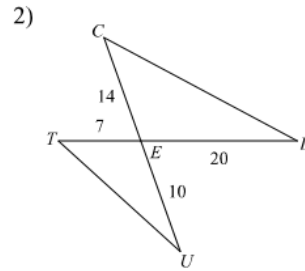
Proving Triangles Similar

Date \_\_\_\_\_ Period \_\_\_\_\_

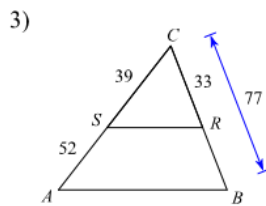
State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.



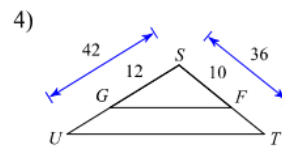
$\triangle WVU \sim$  \_\_\_\_\_



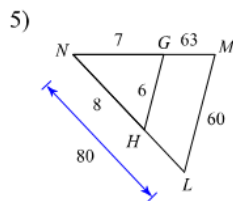
$\triangle EDC \sim$  \_\_\_\_\_



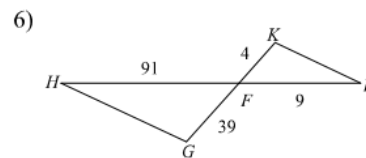
$\triangle CBA \sim$  \_\_\_\_\_



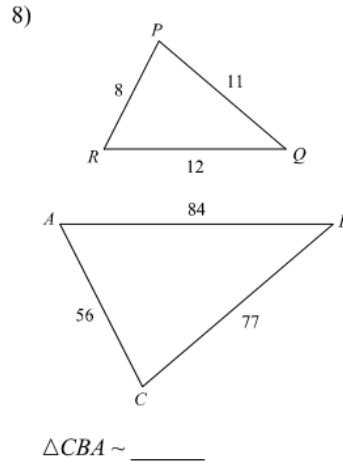
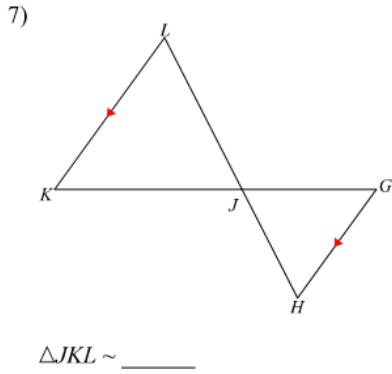
$\triangle STU \sim$  \_\_\_\_\_



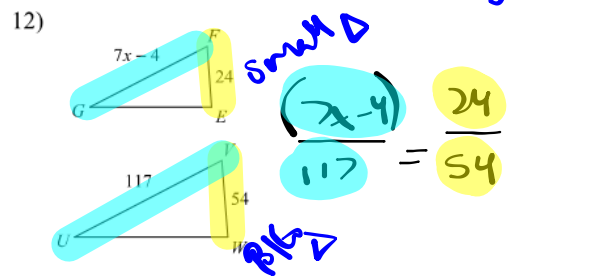
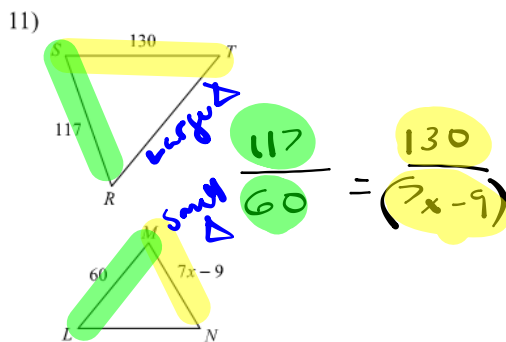
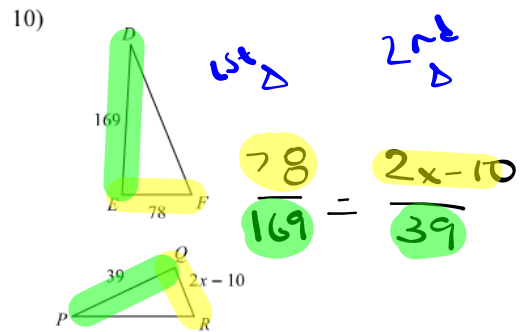
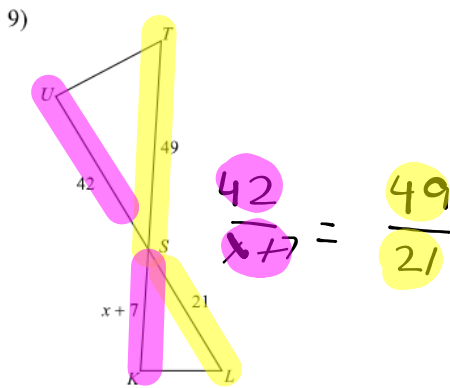
$\triangle NML \sim$  \_\_\_\_\_



$\triangle FGH \sim$  \_\_\_\_\_



Solve for  $x$ . The triangles in each pair are similar.



Find the missing length. The triangles in each pair are similar.

13)

set pink

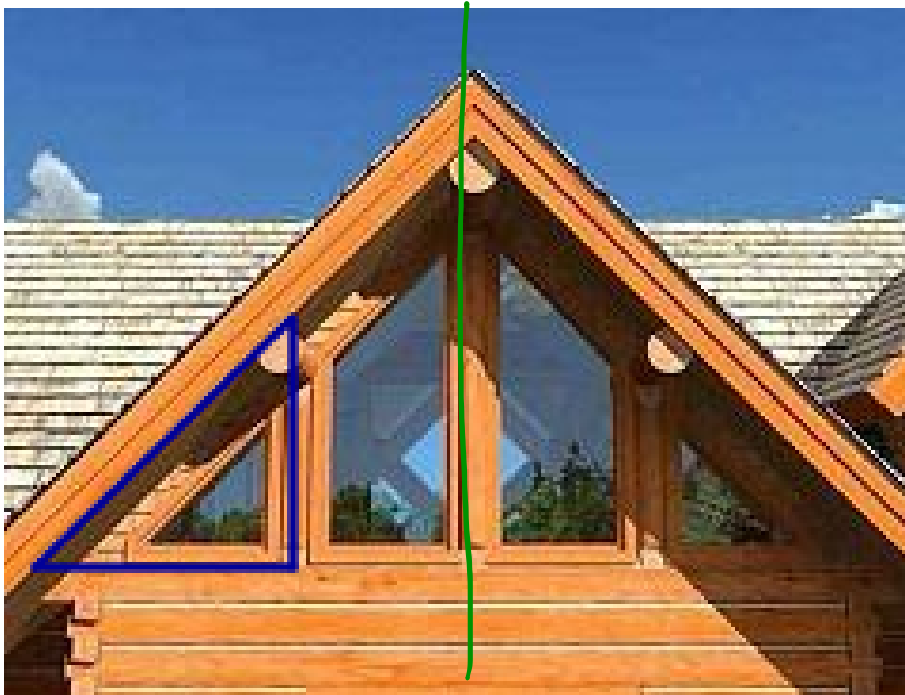
$$\frac{65}{x} = \frac{130}{50}$$

14)

$$\frac{24}{x} = \frac{27}{117}$$

15)

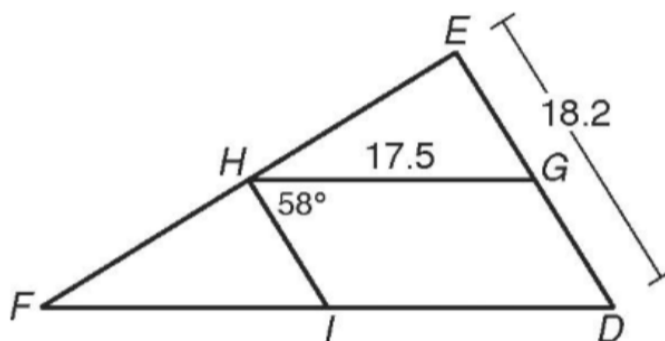
16)

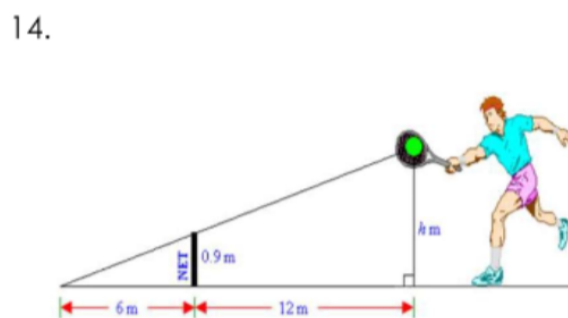
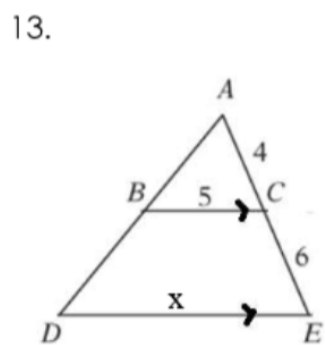
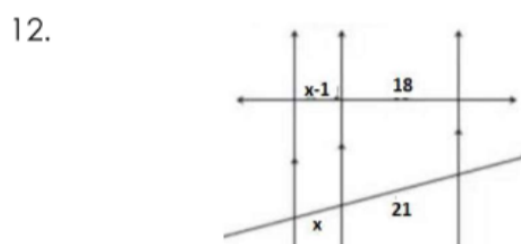
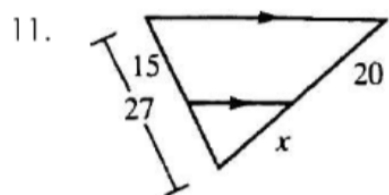


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8. Find each measure. H, G, and I are all midpoints.

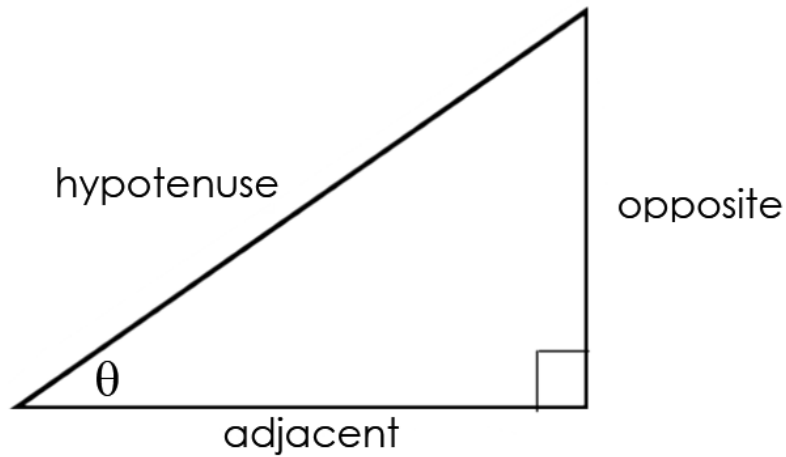
- a)  $HI$  \_\_\_\_\_      b)  $DF$  \_\_\_\_\_  
c)  $GE$  \_\_\_\_\_      d)  $m\angle HIF$  \_\_\_\_\_  
e)  $m\angle HGD$  \_\_\_\_\_      f)  $m\angle D$  \_\_\_\_\_





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

Trigonometry Ratios



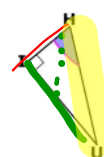
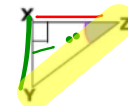
Sine	Cosine	Tangent
SOH CAH TOA		
$S = \frac{O}{H}$	$C = \frac{A}{H}$	$T = \frac{O}{A}$ SOCAHTOA

1. Identify the side that is opposite  $\angle Z$   $\overline{XY}$

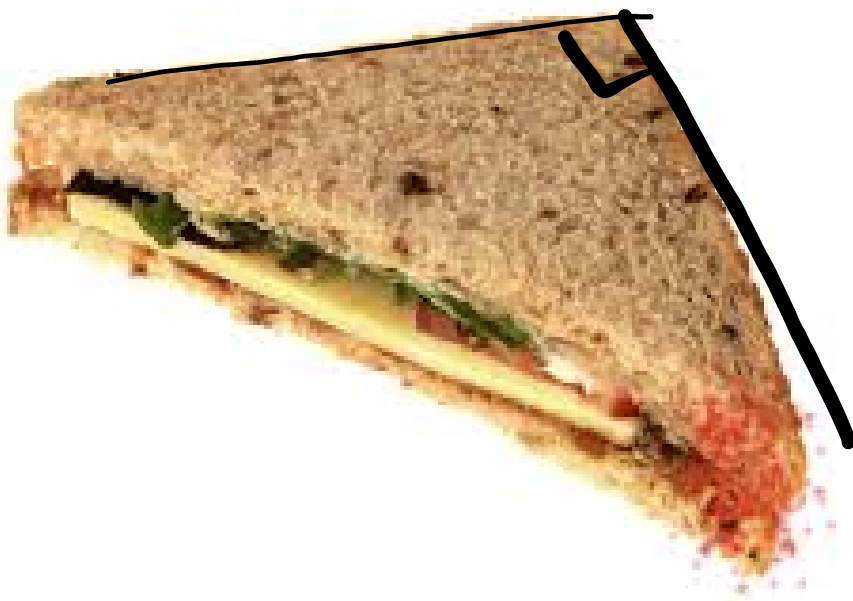
2. Identify the side that is adjacent to  $\angle Z$   $\overline{ZX}$

3. Identify the side that is opposite  $\angle H$   $\overline{IU}$

4. Identify the side that is adjacent to  $\angle H$   $\overline{HI}$





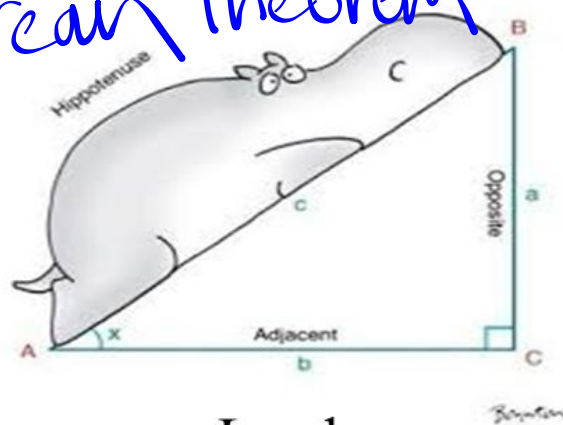


Applies to Right Triangles Only!

Pythagorean Theorem

hypotenuse

c



Leg a

Leg b

$$(\text{leg})^2 + (\text{leg})^2 = (\text{hypotenuse})^2$$

$$a^2 + b^2 = c^2$$

$\text{trig}(\theta) = \text{ratio}$  ① Label yo' triangle ② Circle key players

Find the value of each trigonometric ratio. Express your answer as a fraction in lowest terms.

5.  $\sin C =$  **S**  $\frac{21}{29}$  **H** **C** **A** **T** **A**

$\frac{21}{29}$

6.  $\sin C =$  **S**  $\frac{30}{50} = \frac{3}{5}$  **H** **C** **A** **T** **A**

$\frac{30}{50} = \frac{3}{5}$

7.  $\cos C =$  **H**  $\frac{36}{39} = \frac{12}{13}$  **C** **A** **T** **A**

$\frac{36}{39} = \frac{12}{13}$

8.  $\cos C =$  **H**  $\frac{8}{17}$  **C** **A** **T** **A**

$\frac{8}{17}$

9.  $\tan A =$  **H**  $\frac{12}{35}$  **A**

$\frac{12}{35}$

10.  $\tan X =$  **H**  $\frac{36}{27} = \frac{4}{3}$  **A**

$\frac{36}{27} = \frac{4}{3}$

For each of the following, find the trigonometric ratio.

- 11.  $\sin A$
- 12.  $\cos A$
- 13.  $\tan A$
- 14.  $\sin B$
- 15.  $\cos B$
- 16.  $\tan B$

① Label yo' Triangle  
② Circle key players  
③ S H C A T A

① Label yo' Triangle  
② Circle key players  
③ S H C A T A

How do your answers in #11-13 compare to those in #14-16?

The ratios of  $\sin A$  and  $\cos B$  are the same; the ratios of  $\sin B$  and  $\cos A$  are the same; the ratio of  $\tan B$  is the reciprocal of  $\tan A$ .





Geometry

2- Similarity & Right Triangle Trigonometry

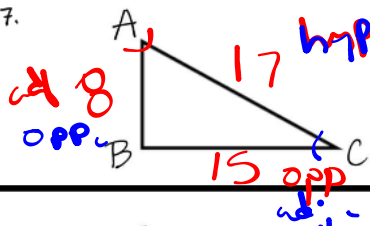
Homework

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

Trigonometry Ratios - Classwork

Draw  $\triangle ABC$  where  $\angle ABC = 90^\circ$ ,  $AB = 8$ ,  $BC = 15$ , and  $AC = 17$ .

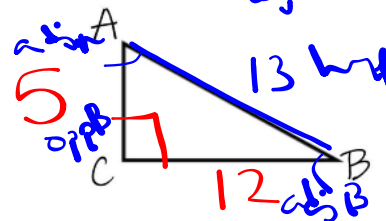
1. What is  $\tan C$ ?  $8/15$
2. What is  $\sin A$ ?  $15/17$



Draw  $\triangle ABC$  where  $\angle ACB = 90^\circ$ ,  $AC = 5$ , and  $CB = 12$ .

3. What is the length of  $AB$ ?  $13$
4. What is  $\cos A$ ?  $5/13$
5. What is  $\tan B$ ?  $5/12$

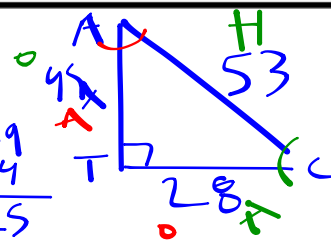
$$\begin{aligned} a^2 + b^2 &= c^2 \\ 5^2 + 12^2 &= c^2 \\ 25 + 144 &= c^2 \\ \sqrt{169} &= \sqrt{c^2} \\ 13 &= c \end{aligned}$$



Draw  $\triangle CAT$  where  $\angle ATC = 90^\circ$ ,  $CA = 53$ , and  $CT = 28$ .

6. What is the length of  $AT$ ?  $45$
7. What is  $\sin C$ ?  $45/53$
8. What is  $\tan A$ ?  $28/45$

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 28^2 + x^2 &= 53^2 \\ 784 + x^2 &= 2809 \\ -784 & \quad -784 \\ \hline x^2 &= \sqrt{2025} \end{aligned}$$



Draw  $\triangle ABC$  where  $\angle B = 90^\circ$  and  $\sin A = \frac{12}{20}$

9. What is the length of  $AB$ ?
10. What is  $\tan A$ ?
11. What is  $\cos A$ ?



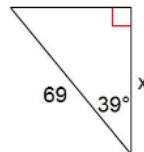
Draw  $\triangle HAT$  where  $\angle H = 90^\circ$  and  $\tan T = \frac{12}{35}$ .

12. What is the length of  $AT$ ?
13. What is  $\sin A$ ?
14. What is  $\cos T$ ?

In the following problems, DRAW stick-man standing where the angle is and MARK each given side as A (adjacent), O (opposite), or H (hypotenuse). Then TELL which TRIG RATIO you have. You will NOT be solving the problem for x (we haven't learned how YET).

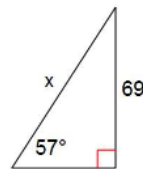
15. Which trig ratio is represented?

- A. SIN
- B. COS
- C. TAN



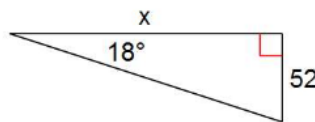
16. Which trig ratio is represented?

- A. SIN
- B. COS
- C. TAN



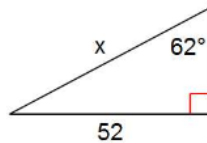
17. Which trig ratio is represented?

- A. SIN
- B. COS
- C. TAN



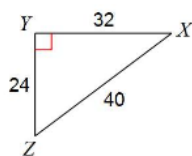
18. Which trig ratio is represented?

- A. SIN
- B. COS
- C. TAN

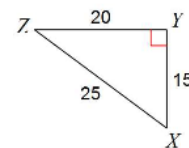


Find each ratio and be sure to reduce, if possible.

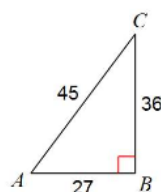
19.  $\tan Z$



20.  $\sin X$



21.  $\cos A$



22.  $\sin C$

