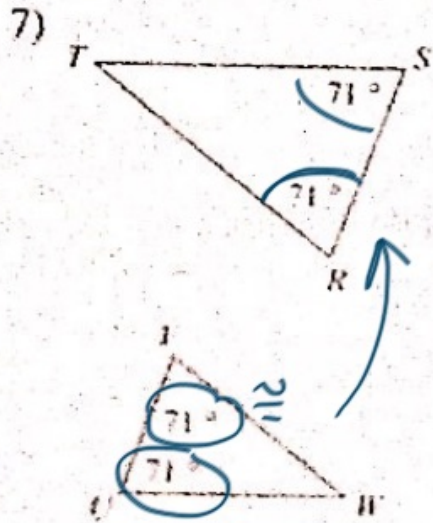


Math 2

take out  
worksheet  
from yesterday

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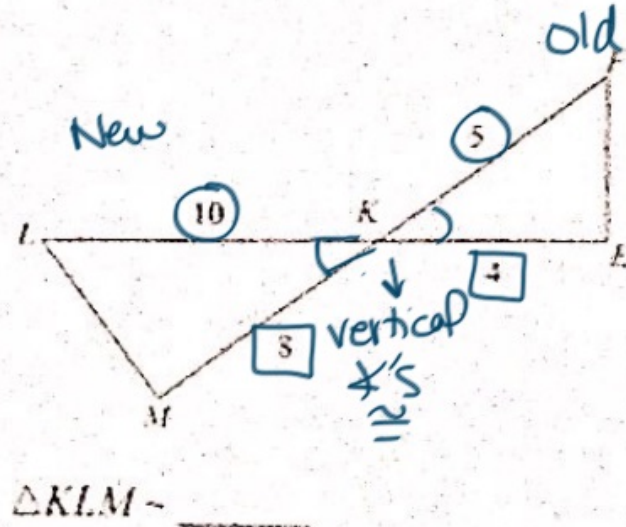




$\triangle RST \sim$  \_\_\_\_\_

AA

8)



$\triangle KLM \sim$  \_\_\_\_\_

$$SF = \frac{\text{New}}{\text{old}}$$

SAS

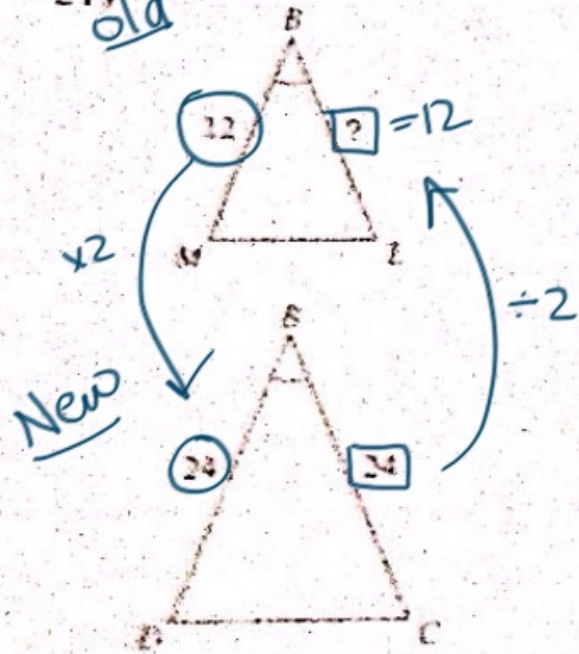
$$\frac{10}{5} = 2$$

$$\frac{8}{4} = 2$$

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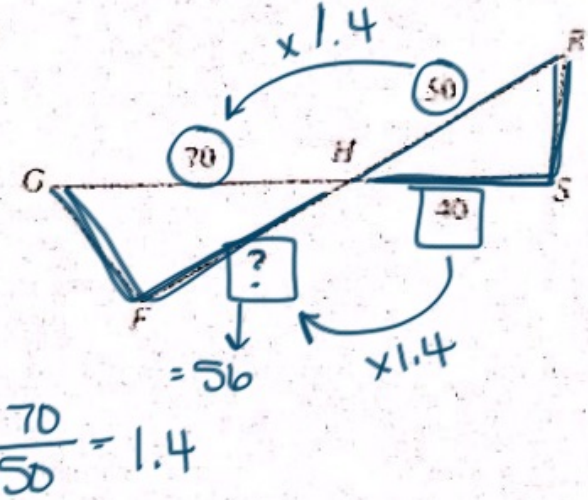


21) old



$$\frac{24}{12} = 2 \rightarrow SF$$

22)



29)

$\frac{117}{21} = 4.\bar{3}$

$\frac{6x-3}{+3} = \frac{33}{+3}$   
 $\frac{6x}{6} = \frac{36}{6}$   
 $x = 6$

30)

$\frac{108}{24} = 4.5$

$\frac{7x-2}{+2} = \frac{26}{+2}$   
 $\frac{7x}{7} = \frac{28}{7} \quad x = 4$

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Math II - Notes -- Trigonometric Methods

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

Vocabulary -

Sine - $\frac{\text{opposite}}{\text{hypotenuse}}$ "sin"	Cosine - $\frac{\text{adjacent}}{\text{hypotenuse}}$ "cos"
Tangent - $\frac{\text{opposite}}{\text{adjacent}}$ "Tan"	SOH CAH TOA - sin opp hypot    Tan opp. Adj. Cos adj hypot
Completely Determined Triangle -	Standard Position -

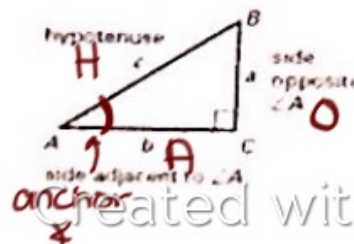
TRIGONOMETRIC RATIOS

Let  $\triangle ABC$  be a right triangle. The sine, the cosine, and the tangent of acute  $\angle A$  are defined as follows.

$$\sin A = \frac{\text{side opposite } \angle A}{\text{hypotenuse}}$$

$$\cos A = \frac{\text{side adjacent to } \angle A}{\text{hypotenuse}}$$

$$\tan A = \frac{\text{side opposite } \angle A}{\text{side adjacent to } \angle A}$$



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## SOH CAHTOA

Example 1: Simple Application of Trig. Ratios

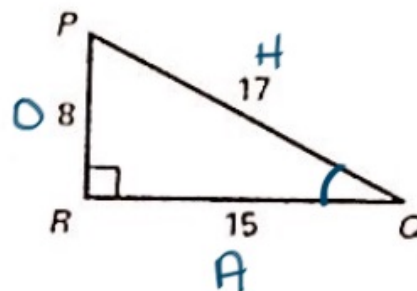
Find the sine, the cosine, and the tangent of  $\angle P$ .

**Solution**

The length of the hypotenuse is 17.

The length of the side opposite  $\angle P$  is 15.

The length of the side adjacent to  $\angle P$  is 8.



$$\sin P = \frac{O}{H} = \frac{15}{17} = .88 \quad \cos P = \frac{A}{H} = \frac{8}{17} = .47 \quad \tan P = \frac{O}{A} = \frac{15}{8} = 1.88$$

$$\sin P = .88$$

Now find the sine, cosine, and tangent of  $\angle Q$ .

$$\sin Q = \frac{O}{H} = \frac{8}{17} = .47 \quad \cos Q = \frac{A}{H} = \frac{15}{17} = .88 \quad \tan Q = \frac{O}{A} = \frac{8}{15} = .53$$

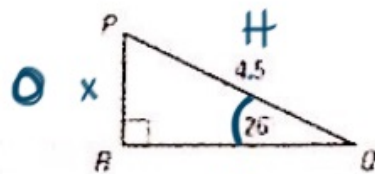
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Example 2: Using Trig. Ratios to Find Missing Side Lengths

$$\frac{\tan \theta}{\sin \theta} = \frac{1}{\cos \theta}$$

A. Find the length of  $\overline{PR}$

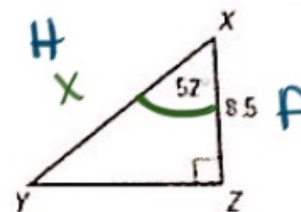


$$4.5 \cdot \sin 26 = \frac{x}{4.5} \cdot 4.5$$

$$x = 4.5 \cdot \sin 26$$

$$\boxed{x = 1.97}$$

B. Find the length of  $\overline{XY}$



$$x \cdot \cos 52 = \frac{8.5}{x} \cdot x$$

$$\frac{x \cdot \cos 52}{\cos 52} = \frac{8.5}{\cos 52}$$

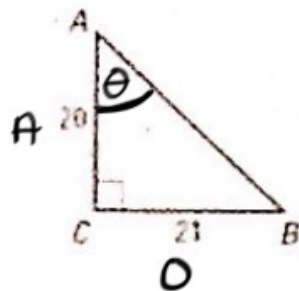
$$x = \frac{8.5}{\cos 52}$$

$$\boxed{x = 13.81}$$

★ Make sure mode is in degrees ★

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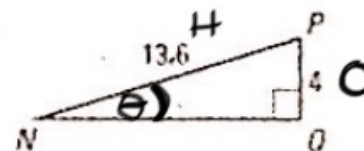


Example 3: Using The Inverse of Trig FunctionsA. Find  $m\angle A$ 

$$\tan \theta = \frac{21}{20}$$

$$\theta = \tan^{-1}\left(\frac{21}{20}\right)$$

$$\theta = 46.4^\circ$$

B. Find  $m\angle N$ 

$$\sin \theta = \frac{4}{13.6}$$

$$\theta = \sin^{-1}\left(\frac{4}{13.6}\right)$$

$$\theta = 17.1^\circ$$

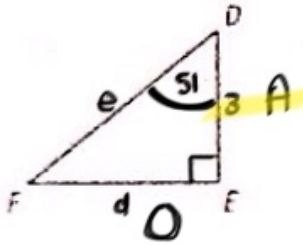
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Practice Problems: The values of the triangles below are completely determined. Find the missing values.

1.



$$\cos 51 = \frac{3}{x} \quad \tan 51 = \frac{d}{3}$$

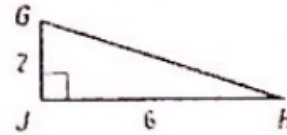
$$x = \frac{3}{\cos 51}$$

$$x = 4.8$$

$$d = 3 \tan 51$$

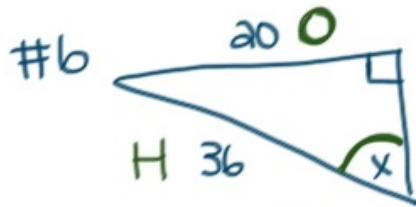
$$d = 3.7$$

2.



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$$\sin \theta = \frac{20}{36}$$

$$\theta = \sin^{-1}\left(\frac{20}{36}\right)$$

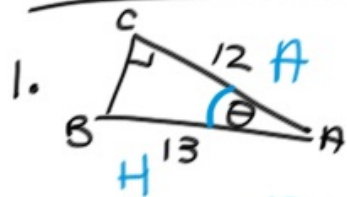
$$\theta = 33.8^\circ$$

SOH CAH TOA

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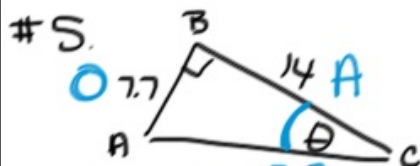
# Right Δ trig Wksht



$$\cos \theta = \frac{12}{13}$$

$$\theta = \cos^{-1}\left(\frac{12}{13}\right)$$

$$\boxed{\theta = 22.6^\circ}$$

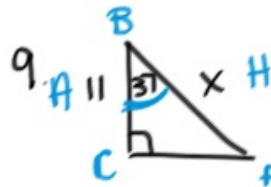


$$\tan \theta = \frac{7.7}{14}$$

$$\theta = \tan^{-1}\left(\frac{7.7}{14}\right) \quad \boxed{\theta = 28.8^\circ}$$

SOH CAH TOA  
 i P y o d y a P d  
 n P P o S j o n P j  
 + +

mode = degrees

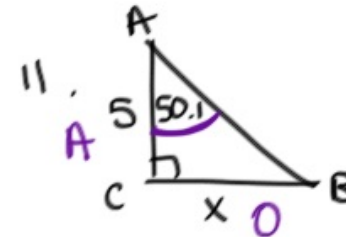


$$x \cdot \cos 37 = \frac{11}{x} \cdot x$$

$$\frac{x \cos 37}{\cos 37} = \frac{11}{\cos 37}$$

$$x = \frac{11}{\cos 37}$$

$$\boxed{x = 13.8}$$



$$5 \cdot \tan 50.1 = \frac{x}{5} \cdot 5$$

$$x = 5 \tan 50.1$$

$$\boxed{x = 5.97}$$

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