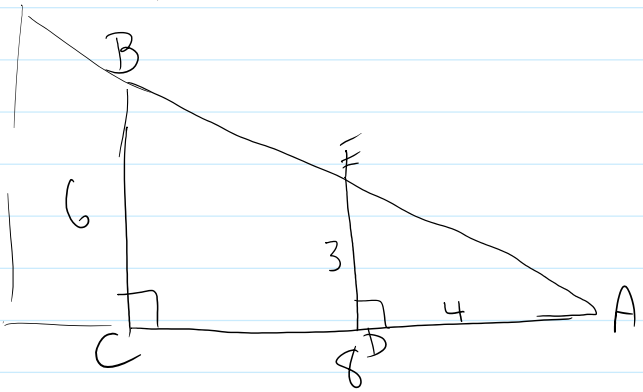
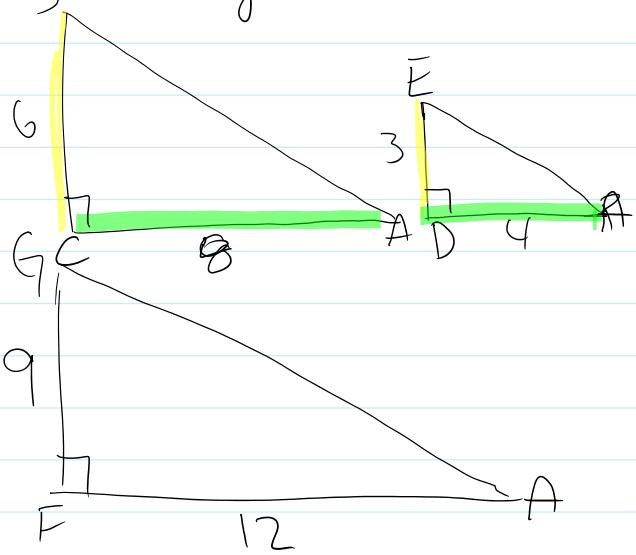
Tangent Ratio

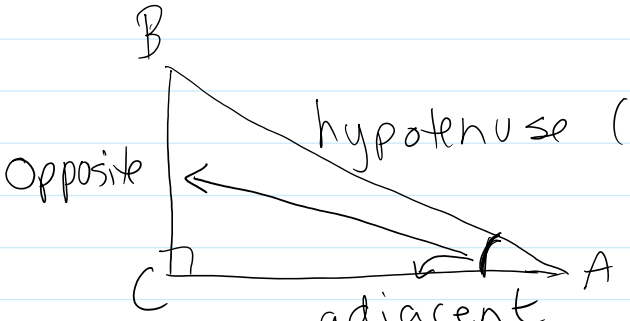
Tuesday, January 28, 2020 11:18 AM

In similar Δ's corresponding angles are equal and corresponding sides are proportional (i.e. same scale factor larger or smaller)



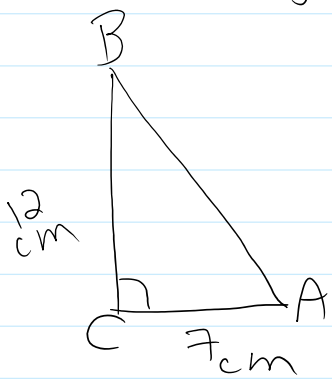


$$\frac{6}{8} = \frac{3}{4} = \frac{9}{12}$$



Tangent ratio

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



$$\text{Find Tan A} = \frac{\text{opp}}{\text{adj}} = \frac{12}{7} = 1.7143$$

What is the Tan 40° = .8391

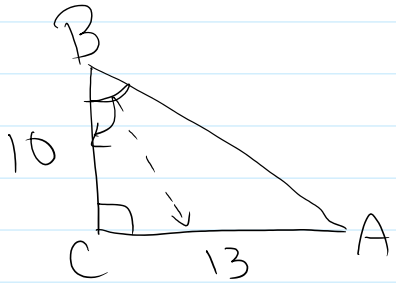
Tan^{-1}

Tan A = .75 $\angle A = \text{Tan}^{-1}.75$

$\angle A = 36.9°$

Use the Tan button when you know the angle + want the ratio.

Use the Tan^{-1} button when you know the ratio + want the angle.



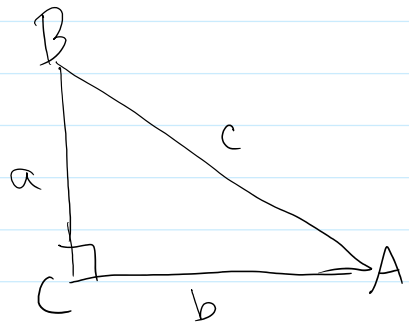
Find Tan $A = \frac{10}{13} = .7692$

Tan $B \frac{13}{10} = 1.3$

"measure of" $m\angle A = \text{Tan}^{-1}(.7692) = 37.6°$

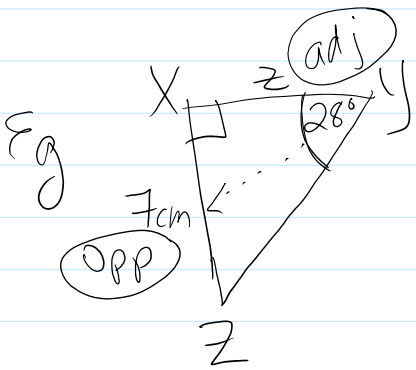
$m\angle B = \text{Tan}^{-1}(1.3) = 52.4°$

90



θ theta
α alpha
β beta
} greek letters

Eg



Find side z (XY)

Tan $A = \frac{\text{opp}}{\text{adj}}$

$\text{Tan}28° = \frac{7}{z}$

$z = \frac{7}{\text{Tan}28°}$

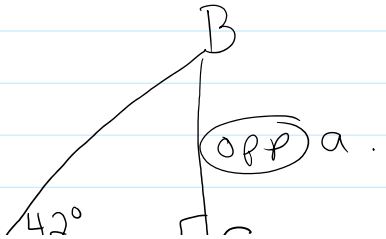
$z = 13.2$ cm

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

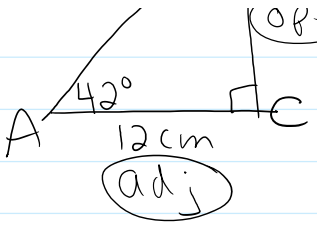
$\frac{2}{3} = \frac{x}{6}$

$x = \frac{2 \times 6}{3}$

Find side a.



Tan $A = \frac{\text{opp}}{\text{adj}}$

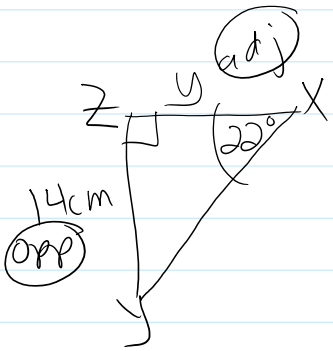


$\tan A = \frac{opp}{adj}$

$\frac{\tan 42^\circ}{1} = \frac{a}{12}$

$a = 12 \times \tan 42$

$a = 10.8$ cm

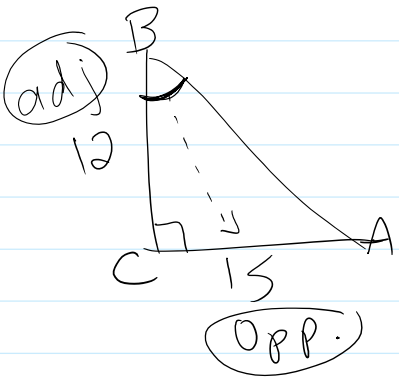


Find side y

$\tan X = \frac{opp}{adj}$

$\frac{\tan 22}{1} = \frac{14}{y}$

$y = \frac{14}{\tan 22} = 34.7$ cm



Find $\angle B$.

$\tan B = \frac{opp}{adj}$

$\tan B = \frac{15}{12} = 1.25$

$\angle B = \tan^{-1}(1.25)$

$\angle B = 51^\circ$

Pg 107-112 #1, 3-4 (odd letters)
5-9, 11-13, 19