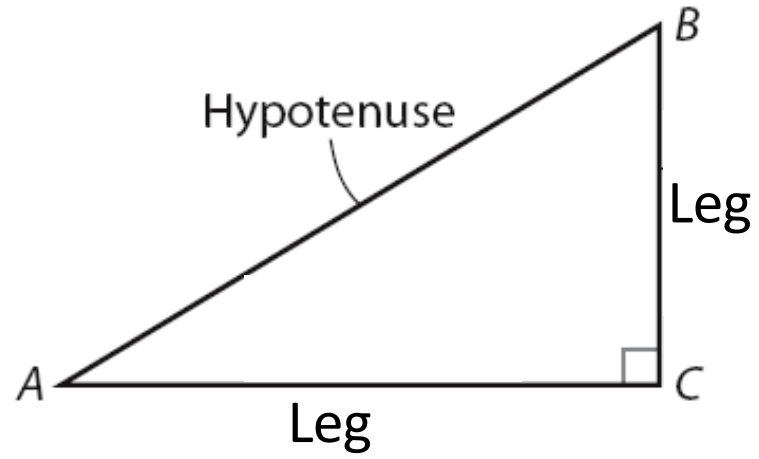
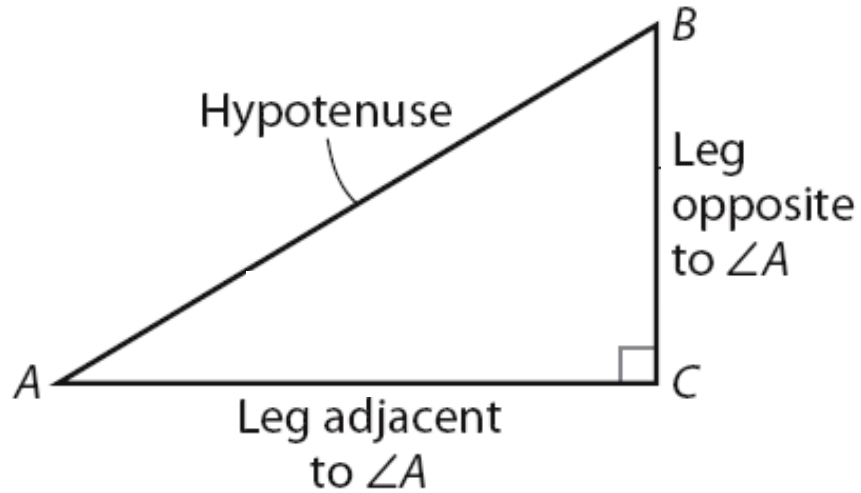


You will need one of my calculators for the lesson.

# In a Right Triangle



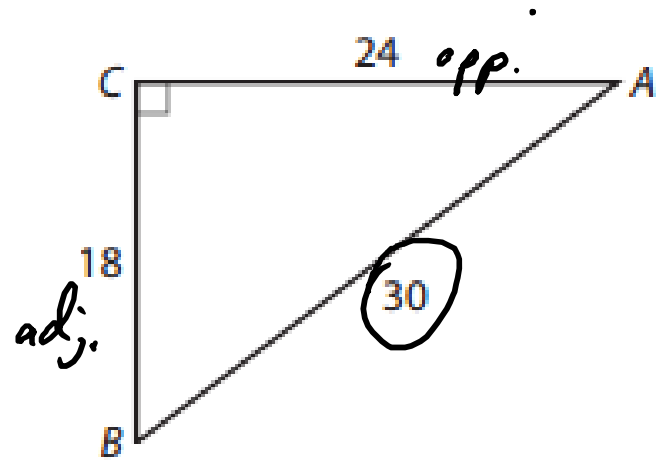
# 13.1 Tangent Ratio



Opposite = across from  
Adjacent = next to

$$\tan A = \frac{\text{opposite leg}}{\text{adjacent leg}}$$

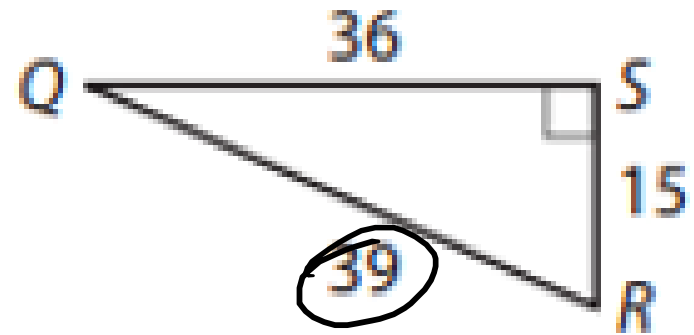
Ex. Find  $\tan A = \frac{18}{24} = \frac{3}{4}$



Ex. Find  $\tan B = \frac{24}{18} = \frac{4}{3}$

Pract. Find  $\tan R = \frac{36}{15} = \frac{12}{5}$

Pract. Find  $\tan Q = \frac{15}{36} = \frac{5}{12}$



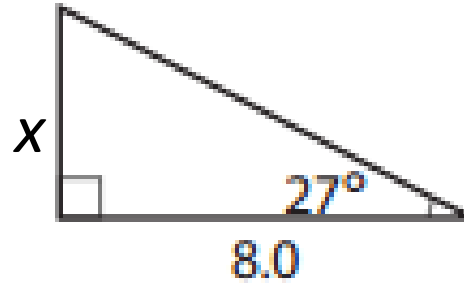
$$\underline{\text{Ex.}} \tan 27^\circ = .51$$

Ex. Find  $x$

$$8 \cdot \tan 27 = \frac{x}{8} \cdot 8$$

$$8 \tan 27 = x$$

$$x = 4.1$$



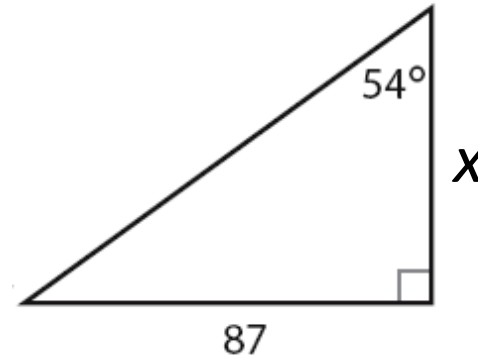
Ex. Find  $x$

$$* \tan 54 = \frac{87}{*} *$$

$$* \frac{\cancel{\tan 54}}{\cancel{\tan 54}} = \frac{87}{\tan 54}$$

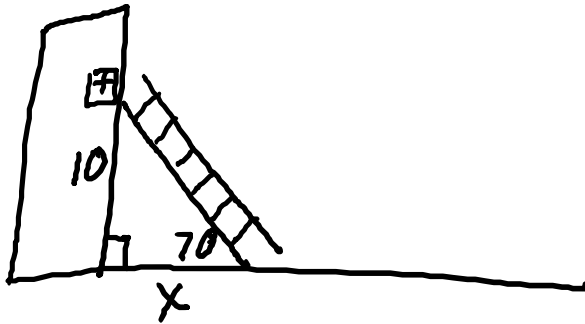
$$x = \frac{87}{\tan 54}$$

$$x = 63.2$$





Pract. A ladder needs to reach the second story window, which is 10 ft above the ground, and make an angle of  $70^\circ$  with the ground. How far from the building does the base of the ladder need to be positioned?



$$x \cdot \tan 70 = \frac{10}{x} \cdot x$$

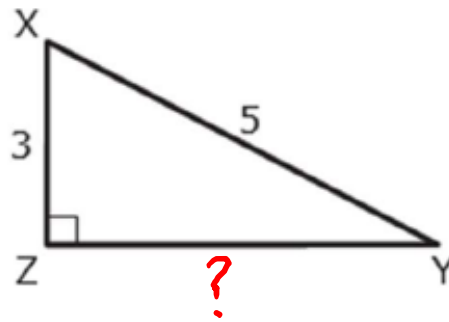
$$x \frac{\tan 70}{\tan 70} = \frac{10}{\tan 70}$$

$$x = \frac{10}{\tan 70}$$

$$x = 3.6$$

$$3 \cdot \tan x = \frac{?}{3} \cdot 3$$

$$3 \tan x = ?$$



$$? \cdot \tan y = \frac{3}{?} \cdot ?$$

$$? \frac{\tan y}{\tan y} = \frac{3}{\tan y}$$

$$? = \frac{3}{\tan y}$$

Decide whether each expression can be used to find the length of  $\overline{ZY}$ . Mark Yes or No for each expression.

expression	Yes	No
$3 \tan(X)$	X	
$3 \tan(Y)$		X

If  $x + 5 = 21$ , how would we find  $x$ ?  
-5      -5

If  $\sqrt{w^2} = \sqrt{36}$ , how would we find  $w$ ?

If  $\tan A = 7.11$ , how would we find  $A$ ?

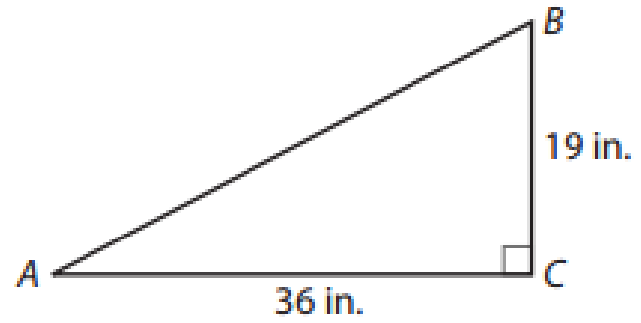
$$A = 81.99$$

If  $\tan J = \frac{10}{7}$ , how would we find  $J$ ?

$$55.0$$

Ex. Find  $m\angle A$

$$\tan A = \frac{19}{36}$$
$$A = 27.8$$



Ex. Find  $m\angle J$

$$\tan J = \frac{46}{93}$$

$$J = 26.3$$

