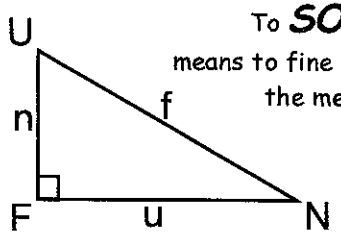
Solving Right Triangles

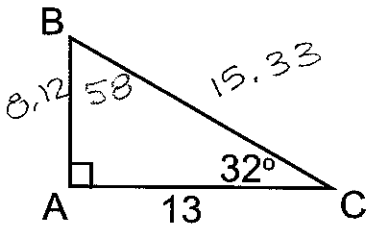


To ***SOLVE A TRIANGLE*** means to fine the lengths of all missing sides and the measures of all missing angles.

To ***SOLVE A RIGHT TRIANGLE*** use:

* the sum of the angles in a triangle is 180°
* Trig Ratios - SOH CAH TOA (preferred)
*Pythagorean Theorem (for checking ONLY!)

Example 1:



A = 90° a = 15.33

B = 58° b = 13

C = 32° c = 8.12

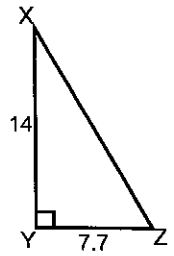
$\cos 32° = \frac{13}{a}$

$a = 15.33$

$\tan 32° = \frac{c}{13}$

$c = 8.12$

Example 2:



X = 28.81° x = 7.7

Y = 90° y = 15.98

Z = 61.19° z = 14

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

$Z = 61.19°$

$14^2 + 7.7^2 = c^2$

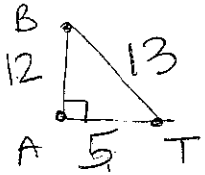
$196 + 59.29\ c^2$

$255.29 = c^2$

$15.98 = c$

Example 3:

Solve $\triangle BAT$ given $\angle A = 90°$, $b = 5$, $t = 12$.



$\tan B = \frac{5}{12}$

$B = 22.62°$

B = 22.62° b = 5

A = 90° a = 13

T = 67.38° t = 12