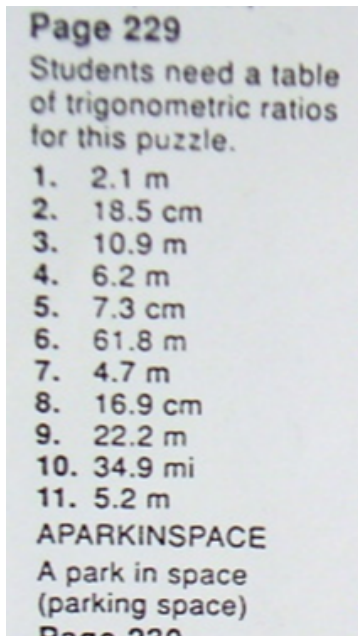
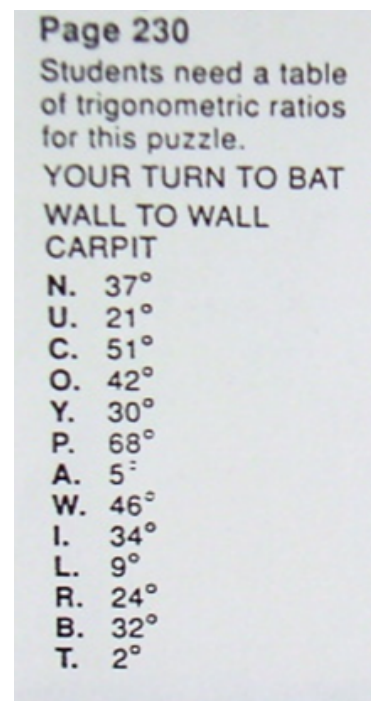


Solutions...

Finding a side:



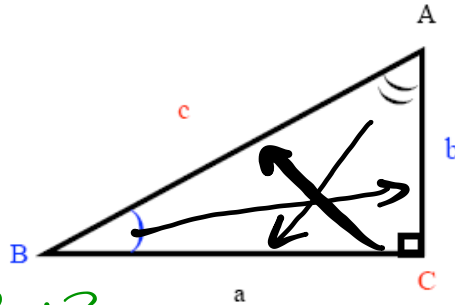
Finding an angle:



Solving Right Triangles

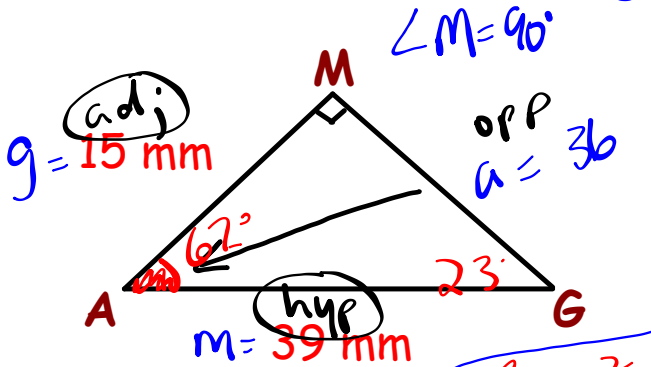
To solve a right triangle means to determine the measure of all six parts (3 lengths, and 3 angles by using basic trigonometric functions and/or Pythagorean Theorem)

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



3-4-5 ; 5-12-13

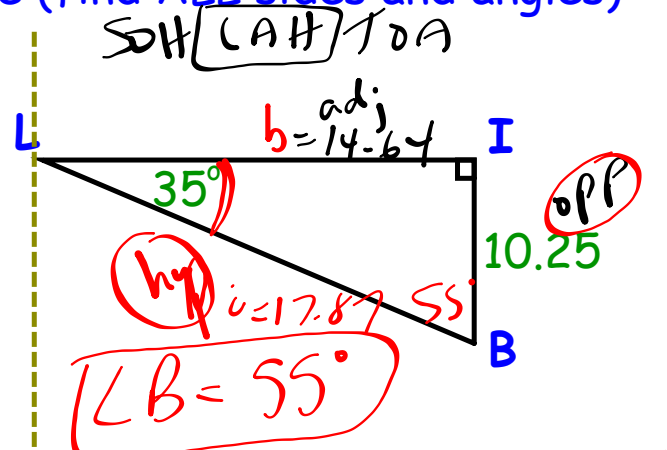
EXAMPLE - Solve the triangle (find ALL sides and angles)



5-12-13 $\times 3$
 $15 \rightarrow 36$ $39 \leftarrow$
 $\sqrt{a^2} = \sqrt{39^2 - 15^2}$
 $a = 36$

$\cos A = \frac{15}{39}$
 $\cos^{-1} \left(\frac{15}{39} \right)$
 $\angle A = 67^\circ$

$\angle G = 23^\circ$



$\tan 35^\circ = \frac{10.25}{b}$

$b = \frac{10.25}{\tan 35^\circ}$

$b = 14.64$

$\sin 35^\circ = \frac{10.25}{i}$
 $i = \frac{10.25}{\sin 35^\circ}$

$i = 17.87$

Example 1 Solving a Right Triangle Given Two Sides

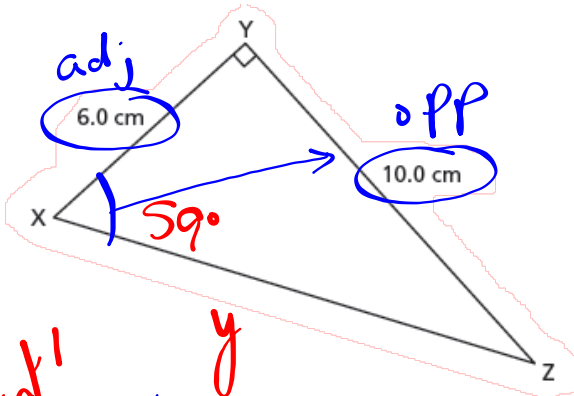
Solve $\triangle XYZ$.
Give the measures to the nearest tenth.

 **SOLUTION**
(erase to reveal)

y \overline{XZ} is approximately 11.7 cm.
 $\angle X$ is approximately 59.0° and
 $\angle Z$ is approximately 31.0° .

$$y^2 = \sqrt{6^2 + 10^2}$$

$$y = 11.66 \text{ cm}$$



~~tan~~ $\tan X = \frac{y}{10}$

$\tan^{-1}(\frac{6}{10})$

$$\angle X = 59^\circ$$

$$\angle Z = 90^\circ - 59^\circ$$

$$\angle Z = 31^\circ$$

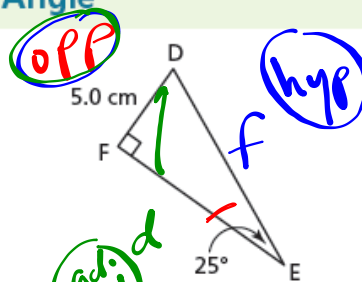


CHECK YOUR UNDERSTANDING

Example 2

Solving a Right Triangle Given One Side and One Acute Angle

Solve this triangle. Give the measures to the nearest tenth where necessary.



$$\angle D = 65^\circ$$

$$\sin 25^\circ = \frac{5}{f}$$

$$f = \frac{5}{\sin 25^\circ}$$

$$f = 11.8 \text{ cm}$$

$$\tan 25^\circ = \frac{5}{d}$$

$$d = \frac{5}{\tan 25^\circ}$$

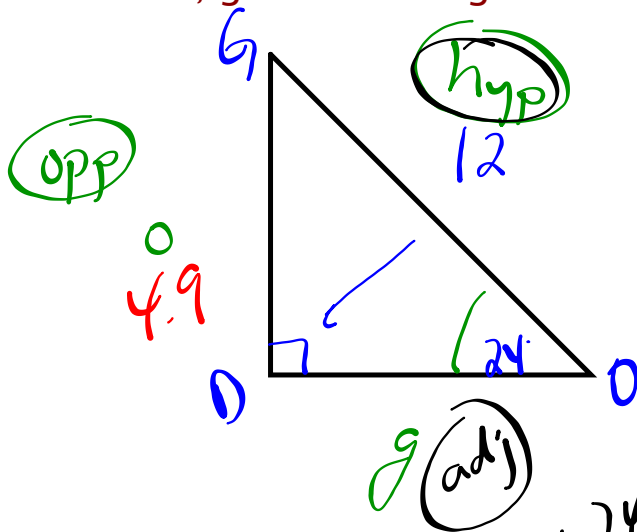
$$d = 10.7 \text{ cm}$$



CHECK YOUR UNDERSTANDING

YOUR TURN...

Solve $\triangle DOG$, given that angle $D = 90^\circ$, angle $O = 24^\circ$ and $d = 12$.



$\angle G = 66^\circ$

$12 \sin 24^\circ = \frac{4.9}{12}$

$4.9 = 0$

$\cos 24^\circ = \frac{9}{12}$

$12 \cos 24^\circ = 9$

$11.0 = 9$

HOMework...

Worksheet - Primary Trig Ratios.doc

#1. \sin

#2. \cos

#3. \tan

Attachments

Worksheet - Primary Trig Ratios.doc