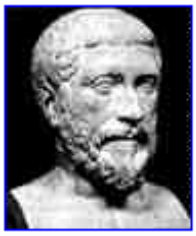
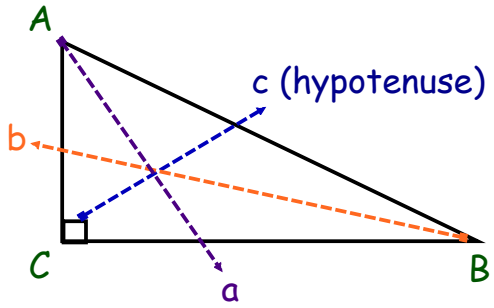


Pythagorean Theorem

- is a fundamental relationship amongst the sides on a **RIGHT triangle.**



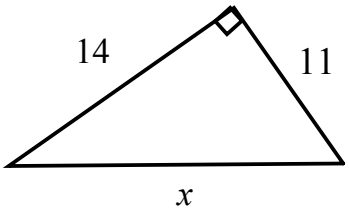
$$c^2 = a^2 + b^2$$

OPTIONS...

#1. Finding the unknown hypotenuse:

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

ex:



$x^2 = 14^2 + 11^2$

$\sqrt{x^2} = \sqrt{317}$

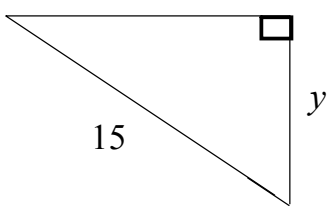
$x = 17.8$

#2. Finding an unknown side

3-4-5
9-12-15

$$a^2 = c^2 - b^2$$

ex:



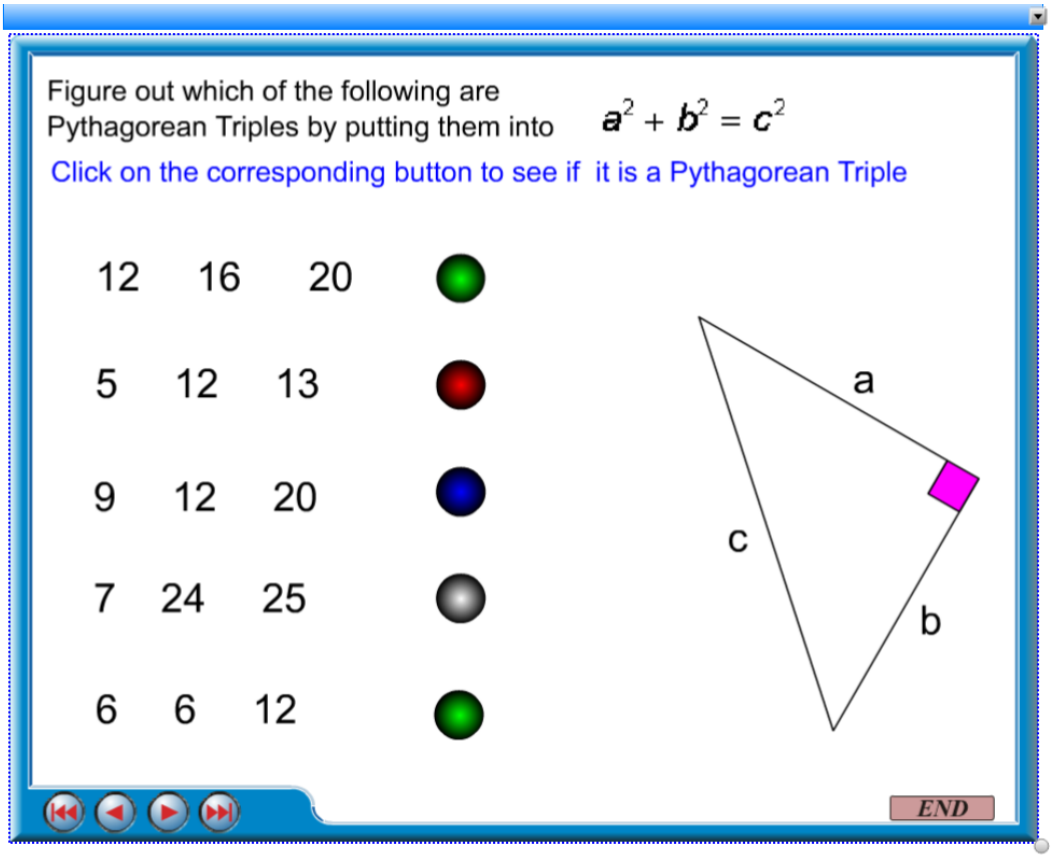
$y^2 = 15^2 - 9^2$

$y^2 = 225 - 81$

$y^2 = 144$

$y = 12$

Pythagorean Triples



Verifying a Pythagorean Triple...

5-12-13

LS	RS
$5^2 + 12^2$	13^2
$25 + 144$	169 ✓
169	

9-12-20 ✗

LS	RS
$9^2 + 12^2$	20^2
$81 + 144$	400
225	$\neq$

Pythagorean Triples...

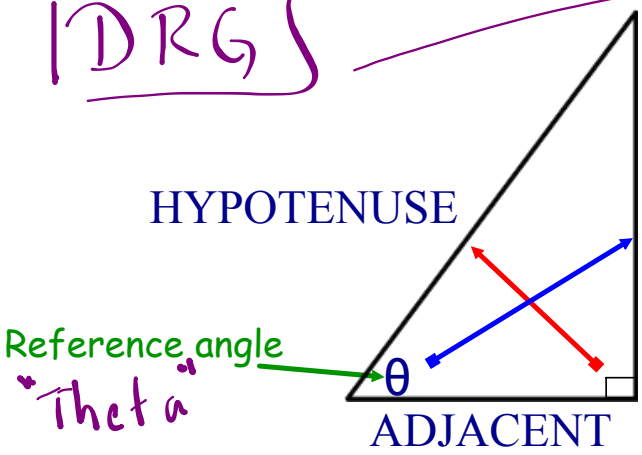
1. 3-4-5
2. 5-12-13
3. 7-24-25

Any multiple of these is also a triple

Trigonometric Ratios

*** Must have calculator in DEGREE mode ***

DRG



Theta

Primary Trigonometric Ratios

$$\sin\theta = \frac{opp}{hyp}$$

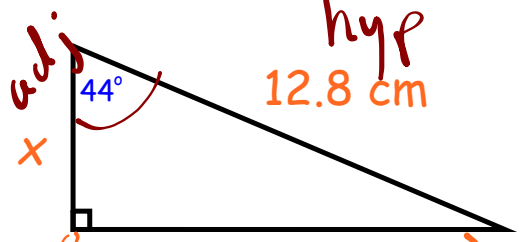
$$\cos\theta = \frac{adj}{hyp}$$

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

Memory Aid: "SOH CAH TOA"

EXAMPLE - Finding an unknown side

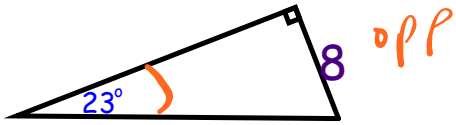
SOH CAH TOA



$\cos 44^\circ = \frac{x}{12.8}$

$9.21 \approx x$

$x = 9.21$ cm



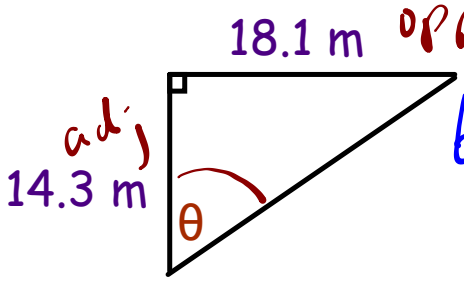
$y \sin 23^\circ = 8$ switch

$\frac{y \cdot \sin 23^\circ}{\sin 23^\circ} = \frac{8}{\sin 23^\circ}$

$y = 20.5$

EXAMPLE - Finding an unknown angle

SOH CAH TOA



$\tan\theta = \frac{18.1}{14.3}$

$\theta = \tan^{-1}\left(\frac{18.1}{14.3}\right)$

$\theta = 52^\circ$

HOMEWORK...

Worksheet - Primary Trig Ratios.doc

Do #1 & 2

Attachments

Worksheet - Primary Trig Ratios.doc