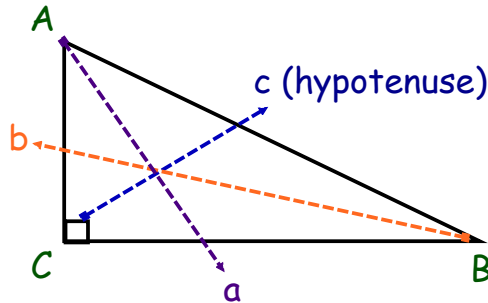


Pythagorean Theorem

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



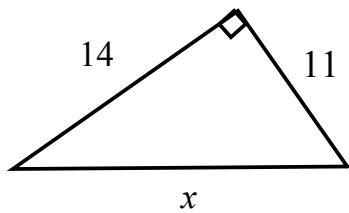
$$c^2 = a^2 + b^2$$

OPTIONS...

#1. Finding the unknown hypotenuse:

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

ex:



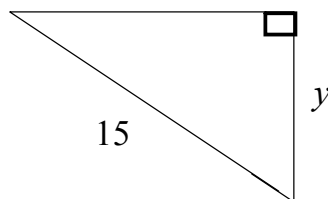
$$\begin{aligned} x^2 &= 14^2 + 11^2 \\ \sqrt{x^2} &= \sqrt{317} \\ x &= 17.8 \end{aligned}$$

#2. Finding an unknown side

3-4-5
9-12-15

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

ex:



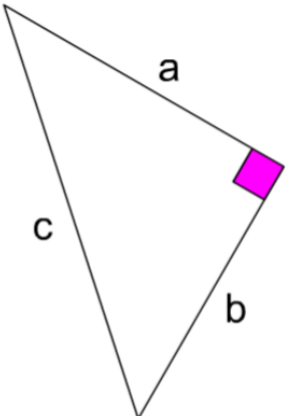
$$\begin{aligned} y^2 &= 15^2 - 9^2 \\ y^2 &= 225 - 81 \\ y^2 &= 144 \\ y &= 12 \end{aligned}$$

Pythagorean Triples

Figure out which of the following are Pythagorean Triples by putting them into $a^2 + b^2 = c^2$

Click on the corresponding button to see if it is a Pythagorean Triple

12	16	20	<input checked="" type="radio"/>
5	12	13	<input type="radio"/>
9	12	20	<input type="radio"/>
7	24	25	<input type="radio"/>
6	6	12	<input checked="" type="radio"/>



END

Verifying a Pythagorean Triple...

5-12-13

9-12-20 X

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

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

Pythagorean Triples...

① $3-4-5$

② $5-12-13$

③ $7-24-25$

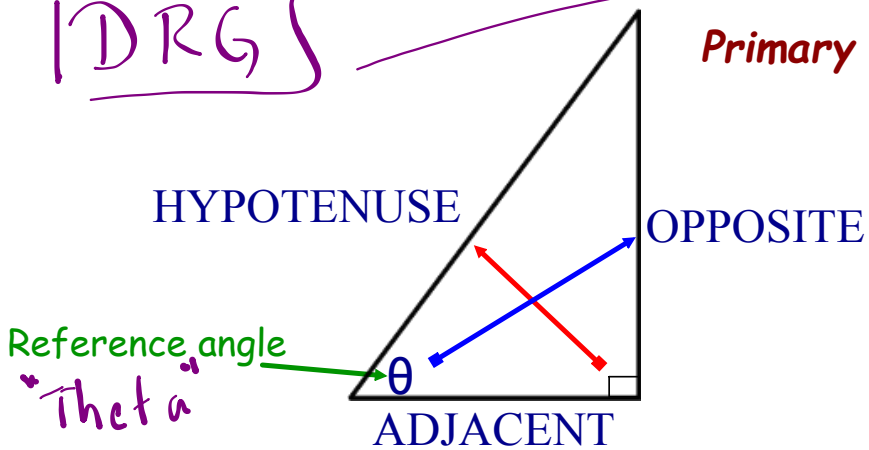
Any multiple
of these is
also a triple

Trigonometric Ratios

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

DRG

Primary Trigonometric Ratios



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

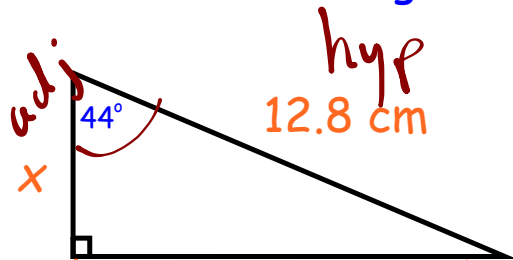
$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

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

Memory Aid: "SOH CAH TOA"

EXAMPLE - Finding an unknown side

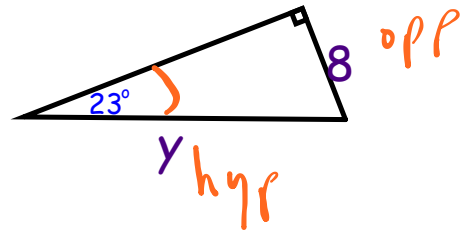
(SOH) (CAH) TOA



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

$$9.21 = x$$

$$x = 9.21 \text{ cm}$$



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

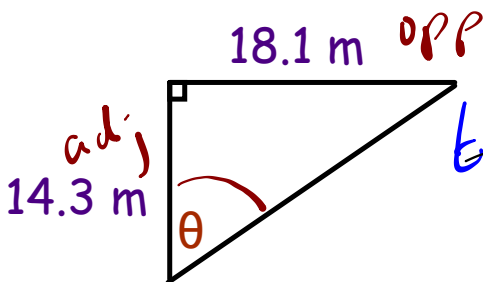
switch y

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

$$y = 20.5$$

EXAMPLE - Finding an unknown angle

SOH (CAH) TOA



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

$$\theta = 52^\circ$$

HOMework...

Worksheet - Primary Trig Ratios.doc



Do #1 & 2

Attachments

Worksheet - Primary Trig Ratios.doc