U2D1_T Trigonometry Intro

Monday, February 26, 2018 12:04 PM

U2D1_T Trigonom...

UNIT 2 QUIZ DATE:_____ UNIT 2 TEST DATE:_____

NOTE: Notes will NOT be allowed for quiz/test. You will have a copy of the reference sheet attached

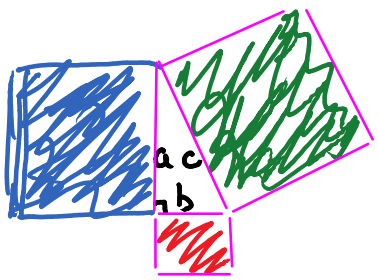
U2D1 **Trigonometry Intro**

Set your calculator to **DEGREE mode

1. Pythagorean Theorem. Draw a right triangle. Label the sides a, b and c (c must be the longest side). Side c is called the hypotenuse.

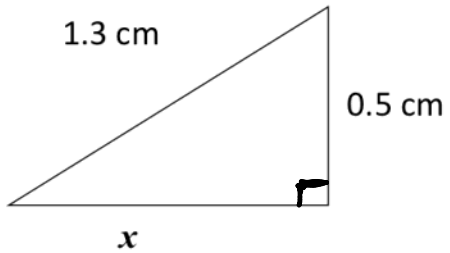
Now draw a square on each side of the triangle. State the relationship between the squares on the sides of the right triangle.

the area of the square at the hypotenuse is the same as the sum of the other two areas.



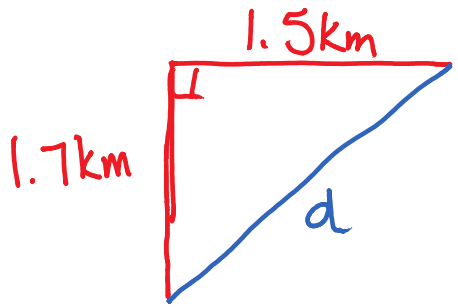
$c^2 = a^2 + b^2$

Ex. 1 Determine the length of the indicated side, in this right-angled triangle.



$$x^2 + 0.5^2 = 1.3^2$$
$$x^2 = 1.3^2 - 0.5^2$$
$$x^2 = 1.69 - 0.25$$
$$x^2 = 1.44$$
$$x = \sqrt{1.44}$$
$$x = 1.2 \text{ cm}$$

Ex. 2 Brad walks 1.7 km North and then 1.5 km East along the sides of a park. Dan starts at the same point and takes a shortcut along the diagonal. How much shorter is Dan's walk?



Brad walks
$1.7\text{ km} + 1.5\text{ km}$
$= 3.2\text{km}$

Dan walks $d^2 = 1.7^2 + 1.5^2$

$d^2 = 2.89 + 2.25$

$d^2 = 8.03$

$d \doteq 2.8$

$\therefore$ Dan's walk is $3.2 - 2.8 = 0.4$ km shorter than Brad's walk

2. Solving Equations.

Ex. 1 Solve for x to the nearest tenth.

a) $\frac{12}{x} = \frac{20}{3}$

$20x = 36$

$\frac{20x}{20} = \frac{36}{20}$

$x = 1.8$

b) $\frac{6.7}{2.8} = \frac{x}{4.2}$

$2.8x = 6.7(4.2)$

$2.8x = 28.14$

$\frac{2.8x}{2.8} = \frac{28.14}{2.8}$

$x = 10.05 \doteq 10.1$

OR

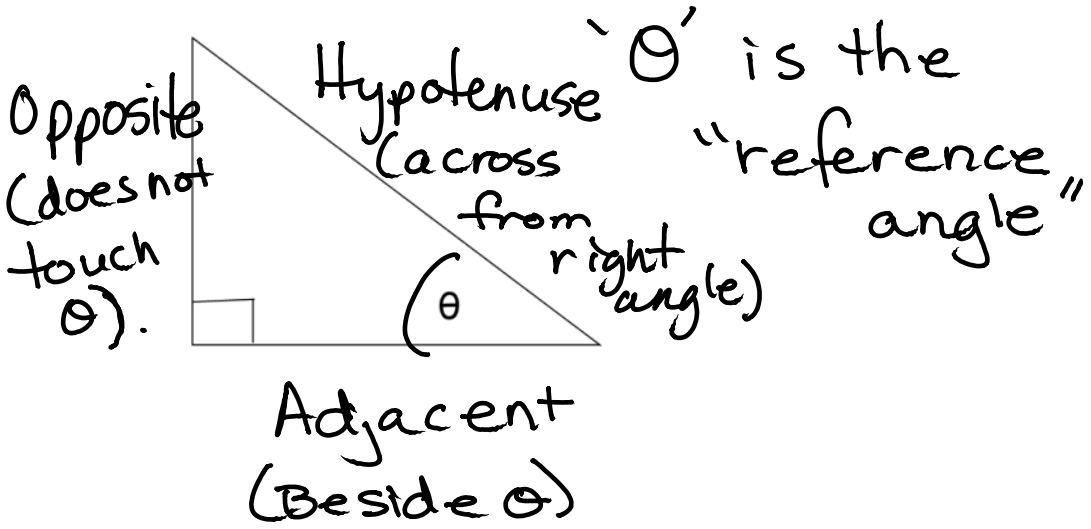
$\frac{x}{4.2} = \frac{6.7}{2.8}$

$\frac{x}{4.2} \times 4.2 = \frac{6.7}{2.8} \times 4.2$

$x = 10.05$

$x \doteq 10.1$

3. Primary Trig Ratios. Given a right triangle with angle θ (theta), label the sides "hypotenuse", side "opposite" to angle θ, and side "adjacent" to angle θ.



To remember the 3 primary trig. ratios of the sides of a right triangle relative to angle θ use

SOHCAHTOA

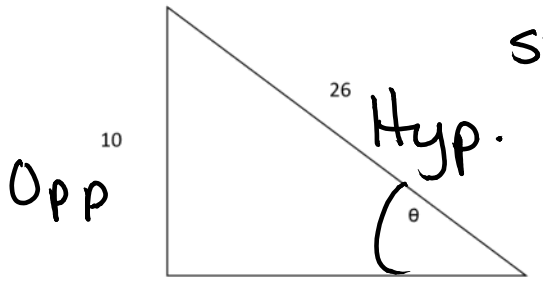
The 3 primary trig ratios are:

sine θ = $\frac{\text{Opp}}{\text{Hyp}}$ $\sin\theta = \frac{O}{H}$

cosine θ = $\frac{\text{Adj}}{\text{Hyp.}}$ $\cos\theta = \frac{A}{H}$

tangent θ = $\frac{\text{Opp}}{\text{Adj}}$ $\tan\theta = \frac{O}{A}$

Ex. 1 Write the 3 primary trig ratios relative to θ.



Opp

Hyp.

Adj

$\sin\theta = \frac{10}{26}$ $\cos\theta = \frac{24}{26}$

$\sin\theta = \frac{5}{13}$ $\cos\theta = \frac{12}{13}$

$\tan\theta = \frac{10}{24}$

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

Ex. 2 Evaluate to four decimal places.

a) $\sin 54 \doteq 0.8090$

b) $\cos 14 \doteq 0.9703$

c) $\tan 61 \doteq 1.8040$

U2D1 Practice: Pg 72 # 4 – 7, 9, 10 ab

Check Answers: Pg. 540