Secondary Math 2

Unit 10 Review

Name: _____ Period: ____

MAIN IDEAS

SOH-CAH-TOA

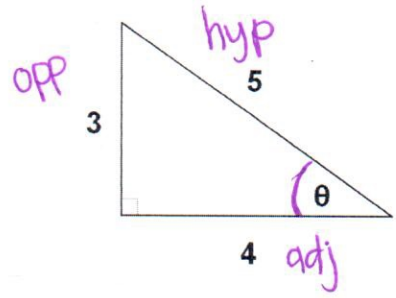
1. What trig ratio equals $\frac{opp}{adj}$?

tanθ

a. What does $cos\theta$ equal?

$\frac{adj}{hyp}$

2. Label the names of the sides from the perspective of θ.

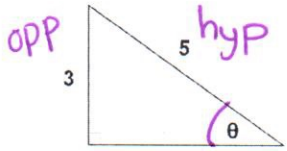


3. Find the value of the trig ratios:

a) $\sin\theta = \frac{3}{5}$

b) $\cos\theta = \frac{4}{5}$

c) $\tan\theta = \frac{3}{4}$

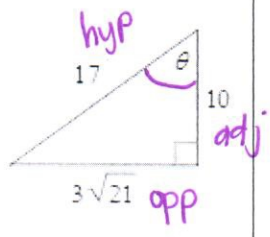


4. Find the value of the trig ratios:

a) $\sin\theta = \frac{3\sqrt{21}}{17}$

b) $\cos\theta = \frac{10}{17}$

c) $\tan\theta = \frac{3\sqrt{21}}{10}$



Trig Reciprocals

Flip the fraction

5. What trig ratio is the reciprocal of:

a) $\sin\theta =$ cscθ $\frac{hyp}{opp}$

b) $\cos\theta =$ secθ $\frac{hyp}{adj}$

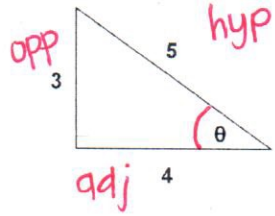
c) $\tan\theta =$ cotθ $\frac{adj}{opp}$

6. Find the value of the trig ratio:

a) $\cot\theta = \frac{4}{3}$

b) $\csc\theta = \frac{5}{3}$

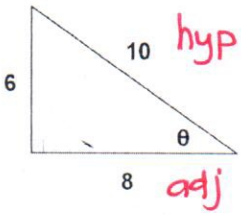
c) $\sec\theta = \frac{5}{4}$



7. What is the value of:

a) $\sec\theta = \frac{hyp}{adj}$

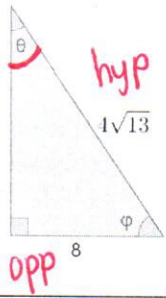
$= \frac{10}{8}$



8. What is the value of:

a) $\sin\theta = \frac{8}{4\sqrt{13}}$

b) $\csc\theta = \frac{4\sqrt{13}}{8}$



∠A+∠B=90°

Complementary Trig Ratios

sinA = cosB

9. If $\sin 40° = 0.643$ then:

$\cos 50° =$ 0.643

40° + 50° = 90° ✓

10. Fill in the blank:

If $\cos 60° = \frac{1}{2}$, then $\sin($ 30° $) = \frac{1}{2}$

$\tan\theta = \frac{\sin\theta}{\cos\theta}$

11. If $\sin\theta = .74$ and $\cos\theta = .43$, what is $\tan\theta$?

$\tan\theta = \frac{\sin\theta}{\cos\theta} = \frac{0.74}{0.43} =$ 1.72

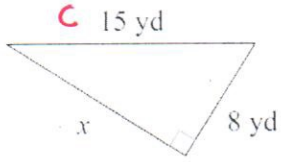
12. If $\sin\theta = \frac{3}{4}$ and $\cos\theta = \frac{4}{5}$, what is $\tan\theta$?

$\tan\theta = \frac{3/4}{4/5} = \frac{3}{4} \cdot \frac{5}{4} = \frac{15}{16}$

Review Pythagorean Theorem

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

13. Solve for x:



$8^2+x^2=15^2$

$64+x^2=225$

$-64 \quad -64$

$\sqrt{x^2}=\sqrt{161}$

$x=\sqrt{161}$ yd

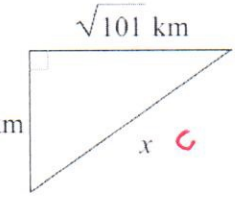
14. Solve for x:

$\sqrt{101}^2+7^2=x^2$

$101+49=x^2$

$\sqrt{x^2}=\sqrt{150}$

$x=\sqrt{150}$ km

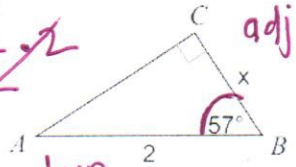


Solve for Unknown Sides

SOH CAH TOA

15. Solve for x:

$2 \cdot \cos 57^\circ = \frac{x}{2} \cdot 2$



$x=2\cos 57^\circ$

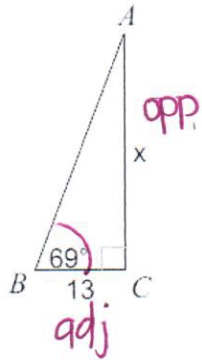
$x=1.09$

16. Solve for x:

$13 \cdot \tan 69^\circ = \frac{x}{13} \cdot 13$

$x=13\tan 69^\circ$

$x=33.87$



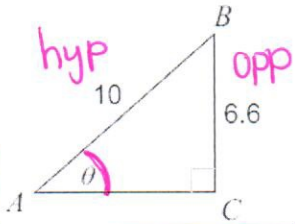
Solve for Unknown Angles (Inverse Trig)

17. Solve for θ:

$\sin\theta = \frac{6.6}{10}$

$\sin^{-1}(\sin\theta) = \sin^{-1}\left(\frac{6.6}{10}\right)$

$\theta = \sin^{-1}\left(\frac{6.6}{10}\right)$



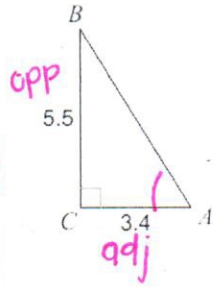
$\theta=41.30^\circ$

18. Solve for $\angle A$:

$\tan A = \frac{5.5}{3.4}$

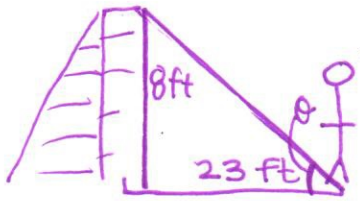
$A=\tan^{-1}\left(\frac{5.5}{3.4}\right)$

$A=58.28^\circ$



Application of Trigonometry

19. Gabe stands 23 feet away from a soccer goal. The upper cross-bar of the goal is 8 feet above the ground. At what angle of elevation must William kick the ball in order to hit the upper cross-bar?



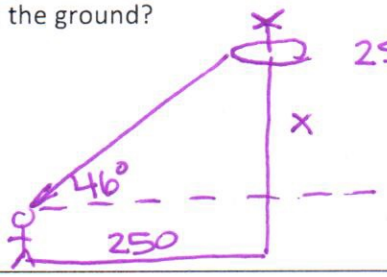
$\tan\theta = \frac{8}{23}$

$\tan^{-1}(\tan\theta) = \tan^{-1}\left(\frac{8}{23}\right)$

$\theta = \tan^{-1}\left(\frac{8}{23}\right)$

$\theta=19.18^\circ$

20. You look through a pair of binoculars at a 46° angle of elevation at a drone. The drone's battery fails and falls to the ground. You run 250 feet to get to the drone. How far did the drone fall before it hit the ground?



$250 \cdot \tan 46^\circ = \frac{x}{250} \cdot 250$

$x=250\tan 46^\circ$

$x=258.88$ ft