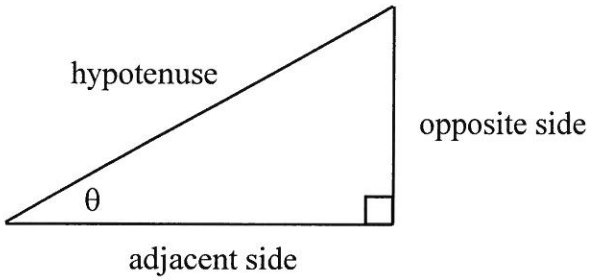
ALGEBRA 2H
Section 13.1: Right Triangle Trigonometry
NOTES

I. Right Triangle Trigonometry

The word trigonometry means "triangle measurement".

1. Definitions:



$\sin\theta$ = _____

$\cos\theta$ = _____

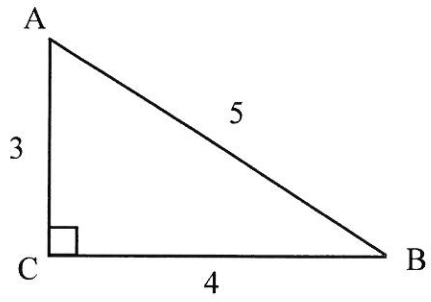
$\tan\theta$ = _____

$\cot\theta$ = _____

$\sec\theta$ = _____

$\csc\theta$ = _____

2. Example: Find the value of each trig function below.



$\sin A$ = _____

$\cos A$ = _____

$\tan A$ = _____

$\cot A$ = _____

$\sec A$ = _____

$\csc A$ = _____

$\sin B$ = _____ $\cos B$ = _____

$\tan B$ = _____ $\cot B$ = _____

$\sec B$ = _____ $\csc B$ = _____

3. Evaluate each trigonometric function to the nearest ten-thousandth using a calculator.

$\sin 45° =$ _____ $\cos 10° =$ _____ $\tan 60° =$ _____

$\csc 30° =$ _____ $\sec 75° =$ _____ $\cot 45° =$ _____

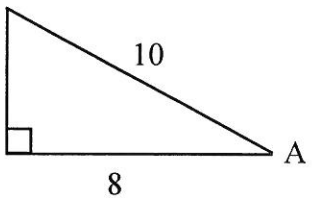
4. Find the angles, θ, to the nearest tenth of a degree using a calculator. (You need to use SHIFT SIN to find the angle from a sine function.)

$\sin\theta = 0.5$ _____ $\cos\theta = 0.6525$ _____

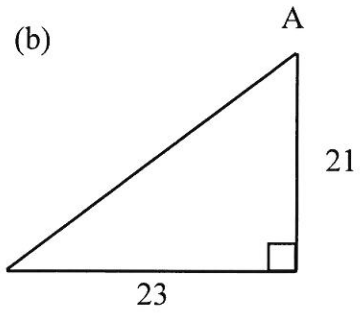
$\tan\theta = 6$ _____

5. Find the $\mathbf{m}\angle\mathbf{A}$ in each triangle below. (Write and solve a trigonometric equation.) Round answers to the nearest tenth of a degree.

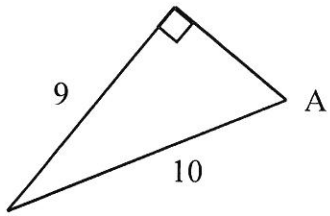
(a)



(b)



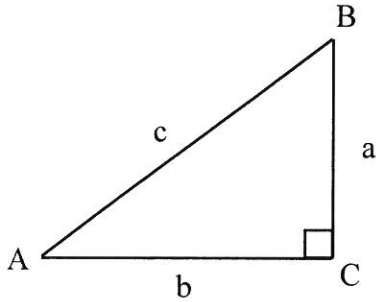
(c)



equation:_____ equation:_____ equation:_____

$m\angle A =$ _____ $m\angle A =$ _____ $m\angle A =$ _____

6. Use the triangle below. Choose the appropriate trigonometric function (sine, cosine, or tangent) to answer each question.



(a) Given b and the measure of $\angle B$, which trigonometric function would you use to find c?

_____

(b) Given b and the measure of $\angle A$, which trigonometric function would you use to find a?

_____

(c) Given c and the measure of $\angle A$, which trigonometric function would you use to find b?

_____

II. Solving a Triangle

1. Solving a triangle means to find the measures of all the _____ and the lengths of all the _____.

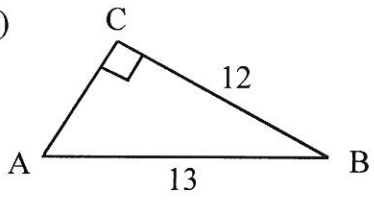
2. You will need to remember 2 rules from Geometry as well:

   (a) The sum of the angles in any triangle is _____.

   (b) The Pythagorean Theorem: _____

3.. Examples: Solve each triangle. Round angle measures to the nearest tenth of a degree and side lengths to the nearest hundredth.

(a)

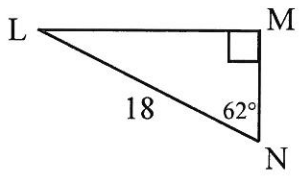


AC = _____

m∠A = _____

m∠B = _____

(b)



m∠L = _____

LM = _____

MN = _____

3. Example: A plane is flying at an altitude of 5 miles and it is 100 miles from the airport (measured on the ground). The plane begins its gradual decent toward the airport, what angle will the plane's path make with the runway?

_____