Name:_____ Hour: _____ Date: _____

NOTES: Section 13.1 – Use Trigonometry and Right Triangles

Goals: #1 - I can evaluate the 6 trigonometric functions for an angle, θ, when given two
sides in a right triangle.

#2 - I can evaluate the 6 trigonometric functions, without a calculator, for 30, 45,
and 60 degree angles.

#3 - I can evaluate the other 5 trigonometric functions for an angle, θ, when given
one of the ratios.

#4 - I can use trigonometry to find 2 unknown sides of a right triangle when given
one acute angle measure and one side length.

#5 - I can use trigonometry to find unknowns in a real life application.

Homework: Lesson 13.1 Worksheet

Notes:

Consider one of the acute angles θ of a right triangle. Ratios of a right triangle's side lengths
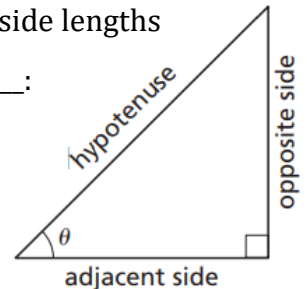are used to define the six _____:

Sine $\sin\theta = $ ——————

Cosine $\cos\theta = $ ——————

Tangent $\tan\theta = $ ——————

Cotangent $\cot\theta = $ ——————

Cosecant $\csc\theta = $ ——————

Secant $\sec\theta = $ ——————

Example #1: Evaluate the six trigonometric functions of the angle θ.
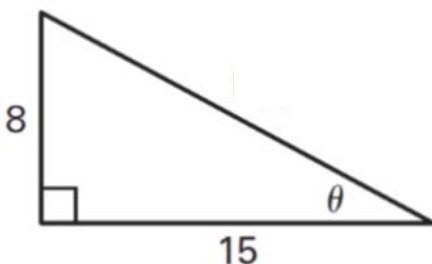
Example #2: If θ is an acute angle of a right triangle and $\cos \theta = \frac{3}{8}$, find the values of the other five trigonometric functions of θ.

Exploration #1: Work with a partner and answer the following questions.

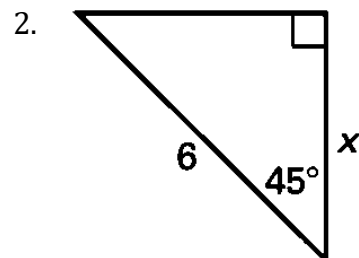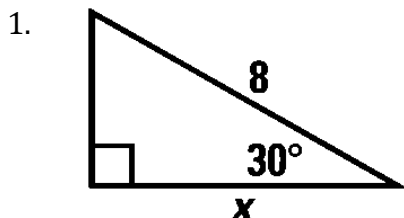1. Find the exact values of the sine, cosine, and tangent functions for the angles $30°, 45°$, and $60°$

$\sin 30° =$	$\cos 30° =$	$\tan 30° =$
$\sin 45° =$	$\cos 45° =$	$\tan 45° =$
$\sin 60° =$	$\cos 60° =$	$\tan 60° =$

Notes:

θ	$\sin \theta$	$\cos \theta$	$\tan \theta$	$\csc \theta$	$\sec \theta$	$\cot \theta$
30°						
45°						
60°						

Example #3: Find the exact value of x in the triangles below.

1.

2.

You practice:

1. If θ is an acute angle of a right triangle and $\sin\theta = \frac{4}{7}$, find the values of the other five trigonometric functions of θ.
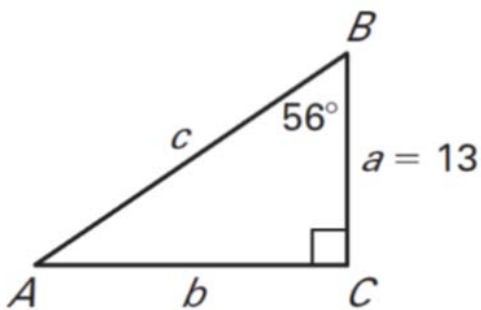
2. Find the exact value of x and y in the triangle below.
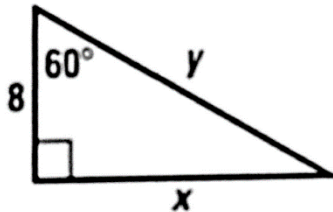
Notes:

Solving a _____ is finding _____ unknown _____ lengths and

_____ measures.

Example #4: Solve $\triangle ABC$. Round answers to the nearest tenth, when necessary.
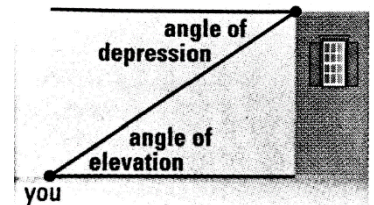
Name:_____ Hour: _____ Date: _____

Notes:

_____:

If you look at a point above you, the angle that your line of sight makes with a line parallel

to the ground is called the _____.

The angle between a line parallel to the group and your line of sight is called the

_____.

These angles have the _____ measure.

Example #5: You are measuring the height of your school building. You stand 25 feet from the base of the school. The angle of elevation from a point on the ground to the top of the school is 62°. Estimate the height of the school to the nearest foot.

You practice:

1. Solve $\triangle ABC$. Round answers to the nearest tenth, when necessary.
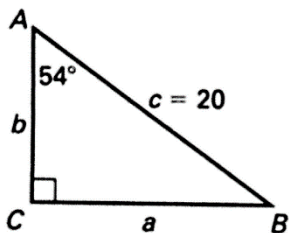
2. A parasailer is attached to a boat with rope 300 feet long. The angle of elevation from the boat to the parasailer is 48°. Estimate the parasailer's height above the boat.