The mathematics field called Trigonometry is the study of _____ triangles and the ratios of the sides.

Each angle of a right triangle has a unique decimal value for each trigonometric ratio. Your calculator has these tables memorized for you. Find the SINE, COSINE and TANGENT buttons on your calculator.

1) Press _____ and make sure the _____ selection is highlighted. Always check that your calculator is in DEGREE mode. You are responsible to check.

2) Press the Trigonometric function you would like followed by the measure of the angle. ***Round to the nearest hundredth.***

Ex 1. sin 35° = _____   Ex 2. cos 18° = _____   Ex 3. tan 87° = _____

If you are given the ratio and asked for the angle, you just use the ratio backwards. Your calculator needs to be told to do this.

Write the keys you will press and then write the angle to the nearest degree.

Ex 7. $\sin x° = \dfrac{8}{17}$ x°= _____   Ex 8. $\tan x° = 1.875$ x°= _____   Ex 9. $\cos x° = \dfrac{1}{2}$ x°= _____

There are 3 of trigonometric relationships that we study.

☐ Sine is the ratio of the _____ side to the _____.

☐ Cosine is the ratio of the_____ side to the _____.

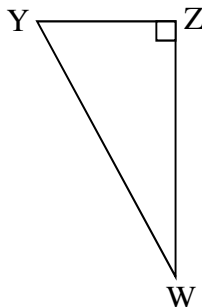☐ Tangent is the ratio of the _____ side to the _____ side.

The _____ NEVER changes, but _____ and _____ are

dependent on the _____ used. The _____ angle is NEVER used.

The three sides of the triangles are referred to as Hypotenuse (H), Adjacent (A), and Opposite (O). Label each side of each triangle using angle W as your reference.
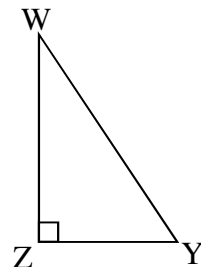
Ex 1.
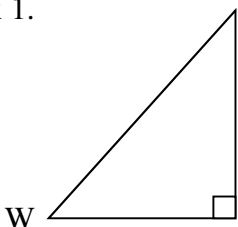
Ex 2.

Ex 3.

To help you remember these relationships, you can use the phrase _____ _____ _____.

The trigonometric ratios are written in an equation form. (**Hint: Write these ratios at the top of EVERY page you are working on.)

Sine x° = ─────────   *Cosine x° =* ─────────   Tangent *x° =* ─────────

***USE THE TRIANGLE AT THE RIGHT* to determine the following trigonometric ratios.**

Ex 4. sin 40° =   Ex 5. sin a° =

Ex 6. cos 40° =   Ex 7. cos a° =

Ex 8. tan 40° =   Ex 9. tan a =
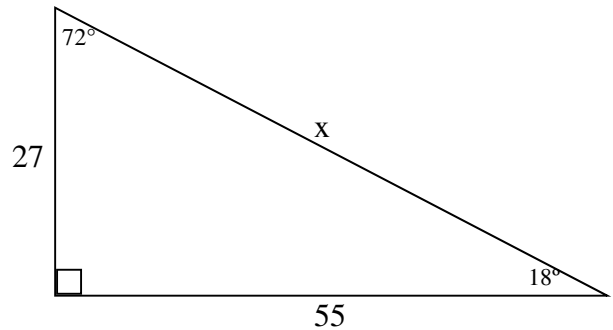
a°

10

n

30

40°
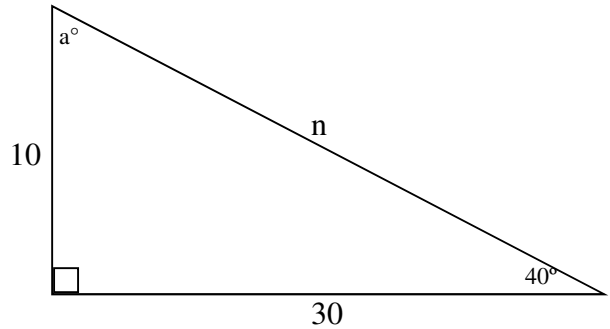
Use the triangle at the right to write all of the following trigonometric equations.

From 72°   From 18°

72°

27

x

55

18°

Use Trigonometric Ratios to Solve for Missing Sides and Angles

1) Determine which Trig Ratio will fit your information.
2) Set up the Trig Ratio
3) Round to the nearest degree if it is an angle and round to the nearest hundredth for sides.

Ex 1.

25   31

n°

Ex2.

51

z°

28

Ex 3.

25

w°

17