Trigonometry Exam 1- Test Prep (KEY)

Degrees, Minutes, and Seconds

Convert 7.237 ° into DMS. Round to the nearest second

A= 7° 14’ 13.2”

Convert 34.579 ° into DMS. Round to the nearest second. (Do This one by hand!)

A= 34° 34’ 44”

Convert 8 ° 29’ 5” into a decimal. Round to the nearest thousandth.

A= 8.485

Convert 10 ° 30’ 2” into a decimal. Round to the nearest thousandth. (Do this one by hand)

A= 10.501

Angle Relationships

What is the least positive coterminal angle of 750 °?

A= 30°

What is the least positive Coterminal angle of -1080?

A= 0

Pythagorean Theorem

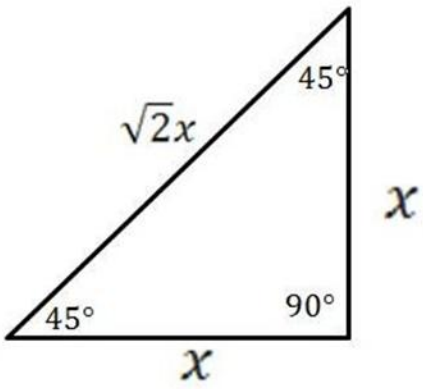
Triangle ABC has side A= 5cm, and B= 6cm. What is the length of side C? Round to the nearest tenth.

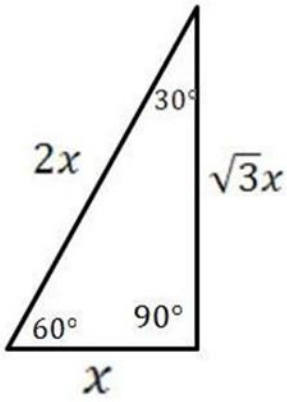
A= 7.8cm

Triangle PQR has P=3cm, and R=5cm. Find the missing side using Pythagorean Theorem.

A= 4cm

Special Right Triangle:





There is a 30°-60°-90° Triangle. X = 5. Find the other sides of the triangle.

A= $5\sqrt{3}$

There is a 45°-45°-90° Triangle X$\sqrt{2}$= 9. Find the other sides of the triangle.

A= $\frac{9\sqrt{2}}{2}$

<u>6 Trig Functions + Reference Angles</u>

	Sin	Cos	Tan	Csc	Sec	Cot
30 °	$1/2$	$\sqrt{3}/2$	$\sqrt{3}/3$	2	$2\sqrt{3}/3$	$\sqrt{3}$
45 °	$\sqrt{2}/2$	$\sqrt{2}/2$	1	$\sqrt{2}$	$\sqrt{2}$	1
60 °	$\sqrt{3}/2$	$1/2$	$\sqrt{3}$	$2\sqrt{3}/3$	2	$\sqrt{3}/3$

What is the value of the Reference angles of the three major trig functions at 225 ° and then write their value.

A= sin 45° $=\sqrt{2}/2$ cos 45°$= \sqrt{2}/2$ Tan45°$= 1$

Find the reference angles for the three major trig functions at 150 ° and then write their value.

A= Sin 30°$= 1/2$ Cos30°$= \sqrt{3}/2$ Tan30°$= \sqrt{3}/3$

Find the reference angles for the three major trig functions at 300 ° and then write their value.

A= Sin 60° $= \sqrt{3}/2$ Cos60° $= 1/2$ Tan60° $=\sqrt{3}$

Triangle ABC has <A=30 °, and side a=8.967cm and find side b assuming ABC is a right triangle.

A= side b is 5.18cm

Triangle ABC has <A=70 °, and side a=5.732cm. Find the side c and all missing sides and angles assuming ABC is a right triangle.

Side b=15.75cm

Side c= 16.76cm

Angle B = 20°

Grade Resistance:

F=Wsinθ

1. The car weighing 1500lbs is going uphill at 4.56°. Find the grade resistance. Show all your steps!

   F= 119.251bs

2. The car weighing 970lbs is going downhill at 7.74°. Find the grade Resistance. Show all your steps!

   F= -130.64lbs

<u>Angle of Elevation and Depression</u>

1. A student stands 40 meters away from the base of a flagpole. The angle of elevation from the student's eye level to the top of the flagpole is 32°. How tall is the flagpole (to the nearest tenth of a meter)?

   A= 25M

2. A lighthouse sits on top of a 60-meter cliff overlooking the ocean. The angle of depression from the lighthouse to a boat in the water is 18°.
   How far is the boat from the base of the cliff (to the nearest meter)?

   A= 185M

3. A firefighter is standing on top of a 12-meter-high building. The angle of depression to a fire hydrant on the ground is 41°. How far is the hydrant from the base of the building?
   A= 13.8M