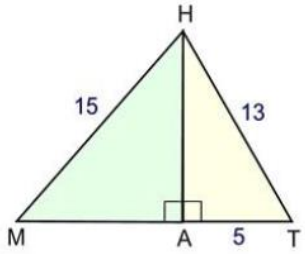
Algebra RH

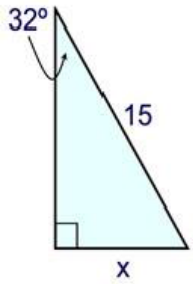
Essential Question: How can we use trig ratios to find missing angles in right triangles?

Do Now:

1. Find the perimeter of ΔMHT in the diagram below.



2. Find the value of x to the *nearest tenth* for the given triangle below.



3. A stake is to be driven into the ground away from the base of a 50 ft pole. A wire from the stake on the ground to the top of the pole is to be installed at an angle of elevation of 52°. How far away from the base of the pole should the stake be driven in, to the *nearest foot*?

Finding Missing **Angles** in Right Triangles

In order to find angle measures, the Inverse Trigonometric Functions are used.
The ratio is known and the angle for that ratio must be found.

1) **Inverse Sine:**

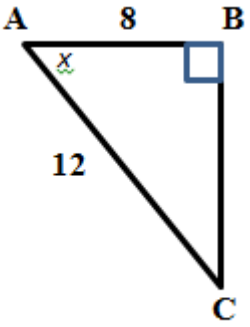
2) **Inverse Cosine:**

3) **Inverse Tangent:**

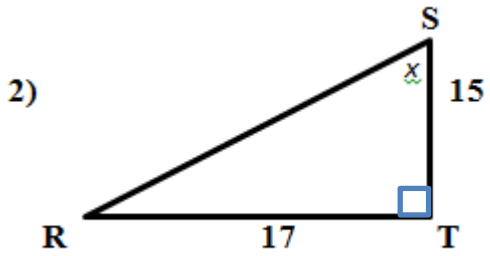
Practice Problem Set

For #'s 1-2, find the value of *x* to the *nearest tenth* of a degree.

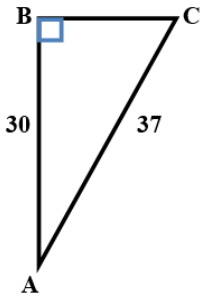
1)



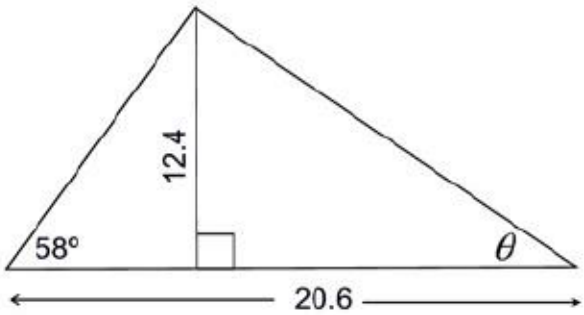
2)



3) Find $m\angle A$ and $m\angle C$ rounded to the nearest *whole degree.*



4) Find the measure of the missing angle θ to the nearest degree.



<u>Real World Applications</u>

5) A 50 foot tree casts a 60 foot shadow. To the nearest degree, what is the angle of elevation from the end of the shadow to the top of the tree?

6) A plane is 6000 feet above the ground when it begins its final approach to an airport runway. If the ground distance to the runway is 20 miles, what is the angle of descent to the nearest tenth of a degree? (1 mi = 5280 ft)

7) A new building needs to be designed in the shape of a trapezoid. The builder needs to know the angle labeled as x. Find the value of the missing angle and round your answer to the nearest hundredth of a degree.