

Name: \_\_\_\_\_ # \_\_\_\_\_

Geometry: Period \_\_\_\_\_

Ms. Pierre

Date: \_\_\_\_\_

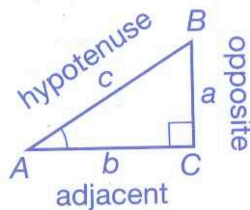
## Finding Missing Angles

### Today's Objective

SWBAT use trigonometric ratios for acute angles in right triangles to find missing angles.

The ratios of the side lengths of a right triangle depend on the measure of its acute angles. These are called \_\_\_\_\_.

$$\text{Sine of } \angle A (\sin A) = \frac{\text{O}}{\text{H}} = \frac{a}{c}$$



$$\text{Cosine of } \angle A (\cos A) = \frac{\text{A}}{\text{H}} = \frac{b}{c}$$

$$\text{Tangent of } \angle A (\tan A) = \frac{\text{O}}{\text{A}} = \frac{a}{b}$$

Thinking “\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_” can help you remember these ratios. Using these ratios, you can find the length of any side of a right triangle if you know one acute angle and any other side.

### Example 1

Let  $\angle A$  and  $\angle B$  be acute angles in two right triangles. Use a calculator to approximate the measures of  $\angle A$  and  $\angle B$  to the nearest tenth of a degree.

a.)  $\sin A = 0.76$

b.)  $\cos B = 0.17$

### Check for Understanding

Find  $m\angle C$  to the nearest tenth of a degree if

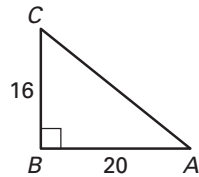
$$\cos T = 0.64$$

Find  $m\angle D$  to the nearest tenth of a degree if

$$\sin D = 0.48$$

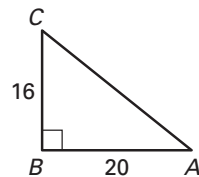
## Example 2

Use a calculator to approximate the measure of  $\angle A$  to the nearest tenth of a degree.



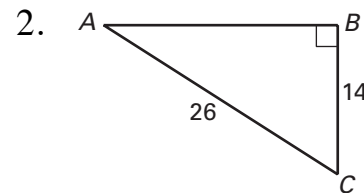
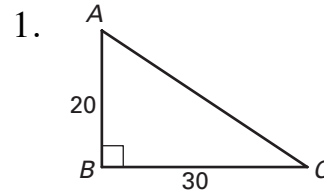
## ☑ Check for Understanding

Use a calculator and an inverse tangent to approximate  $m\angle C$  to the nearest tenth of a degree.

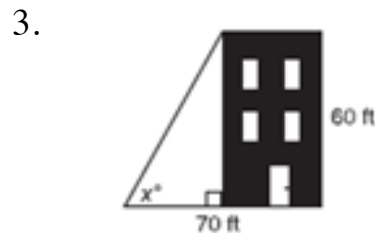


## Guided Practice

Use a calculator to approximate the measure of  $\angle A$  to the nearest tenth of a degree.

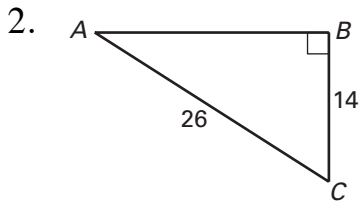
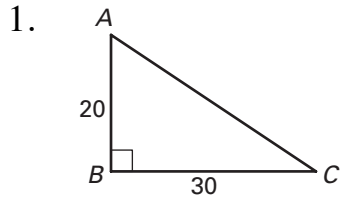


Use a calculator to approximate the measure of  $\angle x$  to the nearest tenth of a degree.



## Independent Practice

Use a calculator to approximate the measure of  $\angle C$  to the nearest tenth of a degree.


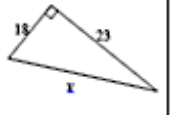
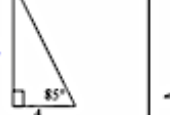
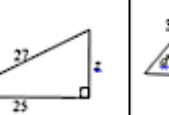
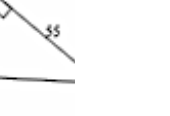
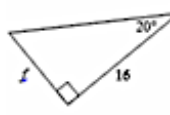


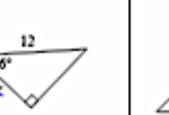
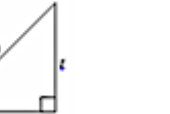
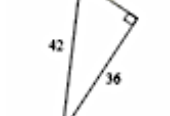

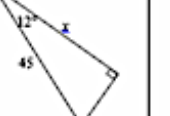
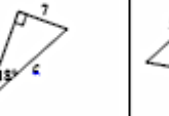
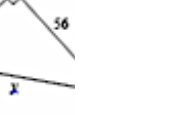
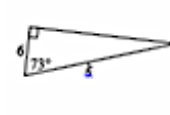


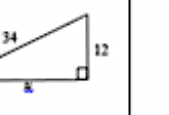



Use a calculator to approximate the measure of  $\angle x$  to the nearest tenth of a degree.



## Enrichment

Use either Pythagorean's Theorem or a trigonometric ratio to solve for the missing side or missing angle of the triangle. Show your working on a separate sheet of paper. Write your final answer in each box.

## Home Work

Let  $\angle A$  be an acute angle in a right triangle. Approximate the measure of  $\angle A$  to the nearest tenth of a degree.

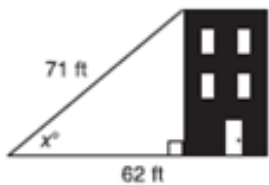
1.  $\tan A = 5.2$

2.  $\cos A = 0.24$

3.  $\sin A = 0.15$

Use a calculator to approximate the measure of  $\angle x$  to the nearest tenth of a degree.

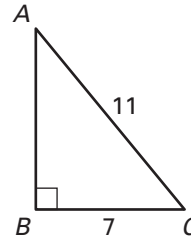
4.



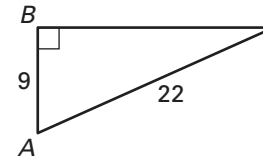
## Home Work

Use a calculator to approximate the measure of  $\angle A$  to the nearest tenth of a degree.

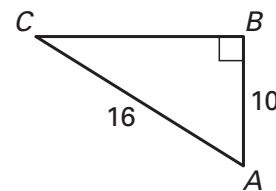
5.



6.



7.



8.

