Complete the outline as you view Video Lecture 9.3. Pause the video as needed to fill in the blanks. Then press Play to continue. Also, circle your answer to each numbered exercise.

Objective 1 Use the Sine, Cosine, and Tangent Ratios to Determine Side Lengths in Right Triangles.

Trigonometric Ratios

Let ΔABC be a right triangle with acute ∠A.

- **sine** of ∠A = \( \frac{\text{length of leg opposite } ∠A}{\text{length of hypotenuse}} = \frac{a}{c} \)
- **cosine** of ∠A = \( \frac{\text{length of leg adjacent to } ∠A}{\text{length of hypotenuse}} = \frac{b}{c} \)
- **tangent** of ∠A = \( \frac{\text{length of leg opposite } ∠A}{\text{length of leg adjacent to } ∠A} = \frac{a}{b} \)

Work Video Exercise 1 with me.

Write the ratios for \( \sin M \), \( \cos M \), and \( \tan M \). Give the exact value and a four-decimal-place approximation.

1. **Work** problem 1 with me.
Section 9.3 Trigonometric Ratios

**Work Video Exercise 2 with me.**

Use a calculator and write a four-decimal-place approximation for the value.

2. \( \cos 58° \)

**Work Video Exercise 3 with me.**

Find the value of \( x \). Round to the nearest tenth.

3. 

\[ \text{Diagram: Right triangle with angle } 64° \text{ and side } 7 \]

**Work Video Exercise 4 with me.**

4. A skateboarding ramp is 12 in. high and rises at an angle of 17°. How long is the base of the ramp? Round to the nearest inch.

**Objective 2** Use the Sine, Cosine, and Tangent Ratios to Determine Angle Measures in Right Triangles.

**Work Video Exercise 5 with me.**

Use calculator to approximate acute \( \angle A \) to the nearest whole degree.

5. \( \cos A = 0.2 \)
Pause and work Video Exercise 6.
Use calculator to approximate acute $\angle A$ to the nearest whole degree.

6. $\sin A = 0.1736$

Play and check.

Work Video Exercise 7 with me.
Find the value of $x$. Round to the nearest degree.

7. 

![Diagram of a right triangle with sides 3.0 and 5.8]