

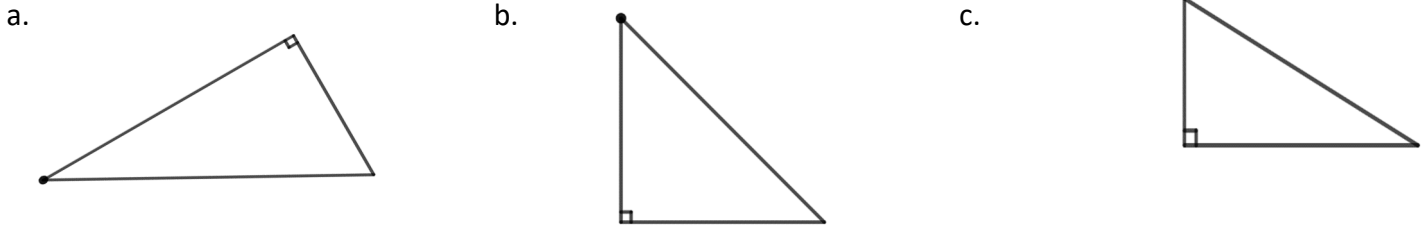
Name: _____

Date: _____

Learning Goal 2.1

Apply the trigonometric ratios to calculate unknown lengths and angles in a right triangle.

Did you ever wonder where does the word “hypotenuse” comes from?

Warmup For triangles a and b, label the sides: Opposite, Adjacent, Hypotenuse from the point of view of angle labeled. For triangle c, let's do a quick calculator check.**Example** Use your calculator to find each of the following RATIOS, round your answer to the nearest thousandth.

a. $\sin 45^\circ$

b. $\sin 20^\circ$

c. $\cos 17^\circ$

d. $\cos 60^\circ$

Example Use your calculator to find the indicated angle, round your answer to the nearest degree.

e. $\sin \theta = 0.923$

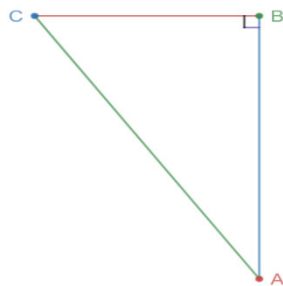
f. $\sin \theta = 0.345$

g. $\cos \theta = 0.234$

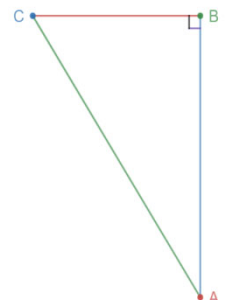
h. $\cos \theta = 0.922$

Example Find the length of AB (round to nearest hundredth).

a. $AC = 10''$
 $\sphericalangle C = 52^\circ$

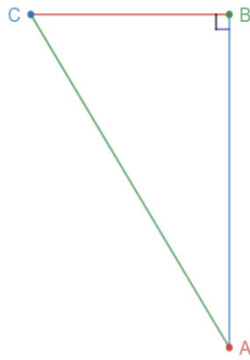


b. $AC = 8 \text{ cm}$
 $\sphericalangle A = 18^\circ$

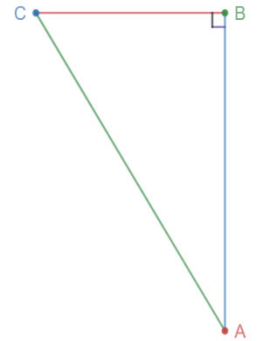


Example Find the measure of angle A (round to the nearest degree).

a. $AB = 6 \text{ mm}$
 $AC = 9 \text{ mm}$

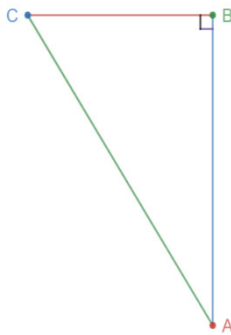


b. $AC = 10.6 \text{ ft}$
 $BC = 7.2 \text{ ft}$

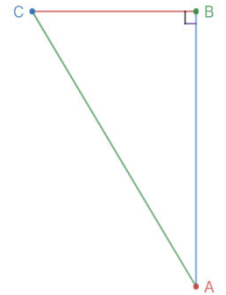


Example Solve $\triangle ABC$. Round lengths to nearest hundredth and angles to the nearest degree.

a. $AC = 5 \text{ cm}$
 $\angle C = 34^\circ$



b. $AC = 15 \text{ cm}$
 $BC = 12 \text{ cm}$



Example Hardeep is looking at Nelson's Monument in Trafalgar Square in London, England. He knows that the monument was built between 1840 and 1843 and it is 169 feet tall. In a moment of fancy, Hardeep wonders about running a zip-line from the top of Nelson's hat to ground. A 10° angle of descent makes for a nice ride. How much cable would be required for this fantasy zip line?

