Law of Sines
Law of Cosines

Name_____
Date _____ Period _____

Round angles to the nearest tenth and round sides to the nearest hundredth

1. Use the Law of Sines to solve the triangle.

$C = 20°$
$B = 10°$
$c = 33$

2. Use the Law of Sines to solve the triangle.

$B = 150°$
$a = 10$
$b = 3$

3. Use the Law of Cosines to solve the triangle.

$B = 110°$
$a = 4$
$c = 4$

4. Use the Law of Cosines to solve the triangle.

$a = 2.5$
$b = 5.0$
$c = 4.5$

For questions 5 – 8, find the area of the triangle.

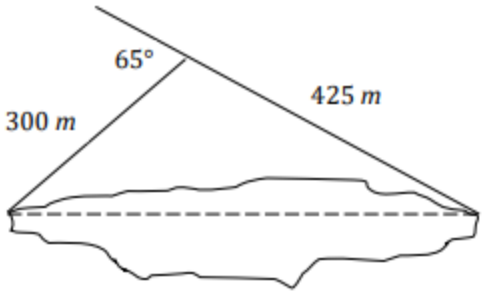
5. $B = 80°, a = 4, c = 8$

6. $a = 4, b = 5, c = 7$

7. $A = 110°, b = 22, c = 21$

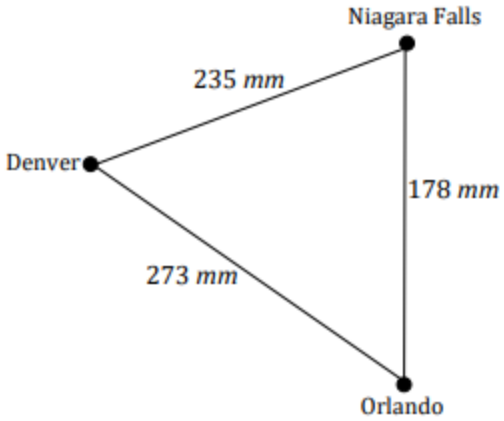
8. $a = 12.3, b = 15.8, c = 3.7$

9. To approximate the length of a marsh, a surveyor walks 425 meters from point A to point B. Then the surveyor turns 65° and walks 300 meters to point C. Approximate the length AC of the marsh.



10. The circular arc of a railroad curve has a diameter of length 3000 feet and a central angle of 40°. Draw a picture. Find the length of the circular arc. $s = r\theta$

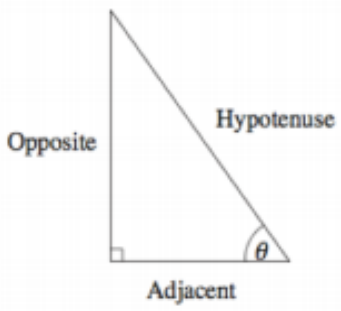
11. On a map, Orlando is 178 millimeters due south of Niagara Falls, Denver is 273 millimeters from Orlando and 235 millimeters from Niagara Falls. Find the bearing of Denver from Orlando.



Trig Ratio Recap

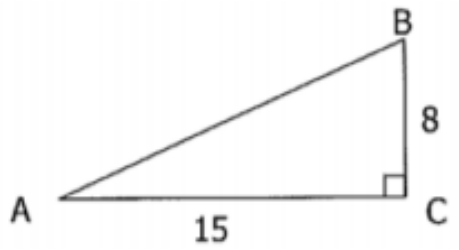
For a right triangle, the sine, cosine, and tangent of the angle θ is defined as:

$\sin\theta =$ _____ $\cos\theta =$ _____ $\tan\theta =$ _____



Remember:

Example 1 Using Trig Ratios



sin A = _____ sin B = _____

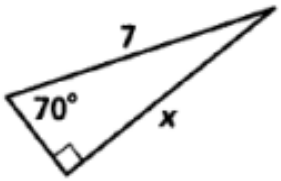
cos A = _____ cos B = _____

tan A = _____ tan B = _____

Example 2 Finding Missing Sides

Use trig ratios to find the missing sides of the following triangles.

1.



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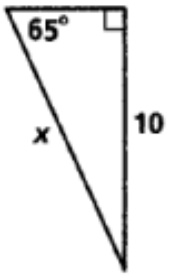

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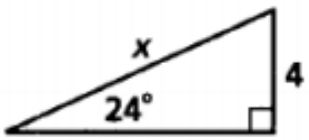

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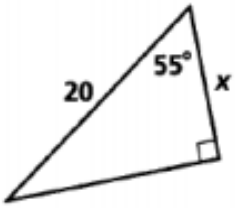


Example 3 Finding Missing Angles

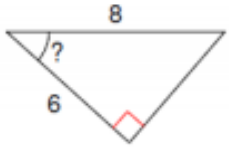
To find a missing _____ in a right triangle, we must use _____ trigonometry.

Ex: $\sin(\text{angle}) = value$ → $sin^{-1}(\text{value}) = \text{angle}$

$\sin(30°) = 0.5$ → $sin^{-1}(0.5) =$

Find the ? angle measure to the nearest degree.

1.



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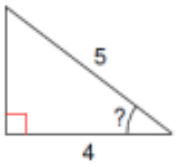

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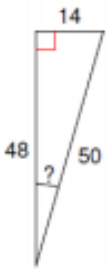

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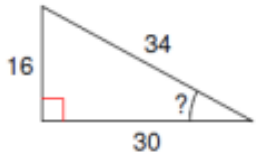

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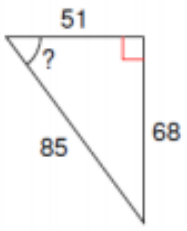
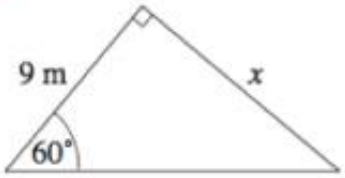


Practice

Find the missing side or missing angle. Show your set-up and solution.

1.



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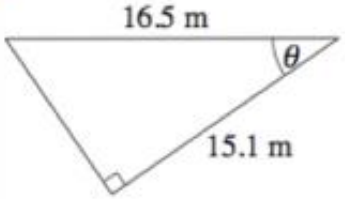

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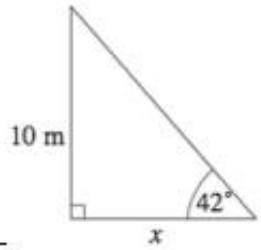

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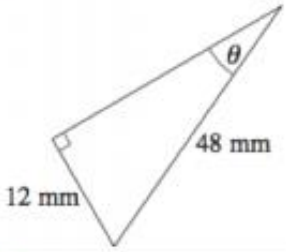

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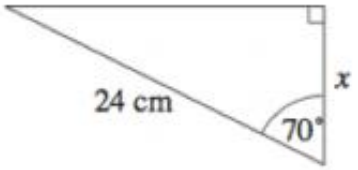

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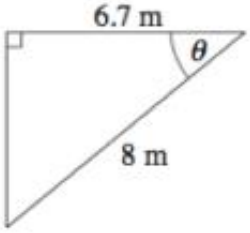

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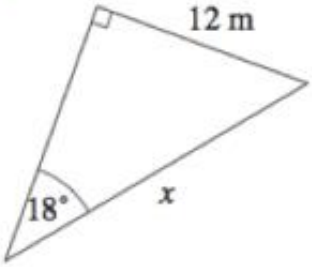

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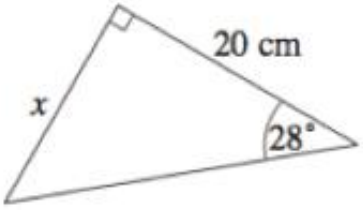

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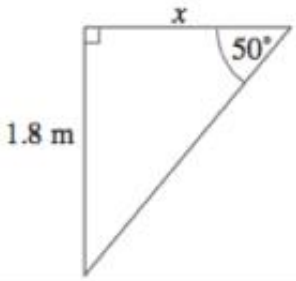

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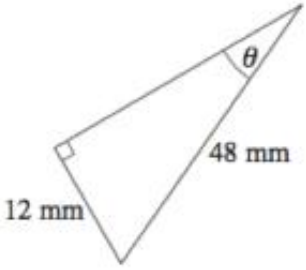

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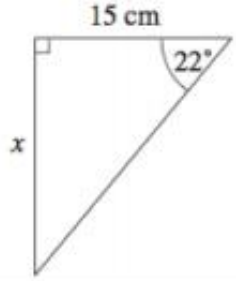

13.

A ladder leans against a wall as shown in the diagram.

(a) How far is the top of the ladder from the ground?

(b) How far is the bottom of the ladder from the wall?