

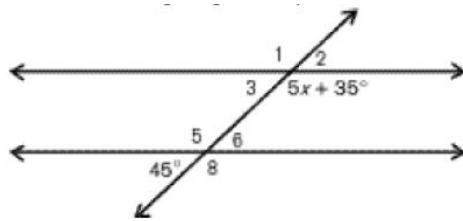
<p>1. Given <math>EFGH</math> is a square with a diagonal drawn from <math>\angle E</math> to <math>\angle G</math>. Complete the proof that <math>\triangle EFG \cong \triangle GHE</math>.</p> <p>a. Is <math>\overline{EF} \cong \overline{GH}</math> and <math>\overline{FG} \cong \overline{HE}</math> true? Why?</p> <p>b. Is <math>\overline{EG} \cong \overline{EG}</math> true? Why?</p> <p>c. Is <math>\triangle EFG \cong \triangle GHE</math> true? Why?</p>	<p>2. What is the measure of a central angle with an arc measure of <math>45^\circ</math>?</p>
<p>3. What is the measure of the arc with an inscribed angle of <math>18^\circ</math>?</p>	<p>4. What is the measure of the angle formed between a tangent and the diameter of a circle?</p>
<p>5. Given an arc length of 20 ft and <math>\theta = 90^\circ</math>, find the radius of the circle.</p>	<p>6. Given a radius with length 4.5 inches and <math>\theta = \frac{\pi}{6}</math>, find the area of the sector.</p>
<p>7. What is the equation of the circle with center at <math>(4, -3)</math> and radius of 2?</p> <p>a. <math>(x - 4)^2 + (y + 3)^2 = 2</math></p> <p>b. <math>(x - 4)^2 + (y + 3)^2 = 4</math></p> <p>c. <math>(x + 4)^2 + (y - 3)^2 = 4</math></p> <p>d. <math>(x - 4)^2 - (y - 3)^2 = 4</math></p>	<p>8. What are the center and radius of the circle described by the equation <math>x^2 + y^2 - 18x + 12y + 68 = 0</math>?</p> <p>a. Center <math>(6, -9)</math>; radius 7</p> <p>b. Center <math>(-9, 6)</math>; radius 7</p> <p>c. Center <math>(-6, 9)</math>; radius 7</p> <p>d. Center <math>(9, -6)</math>; radius 7</p>

9. The diameter of a circle is 8 centimeters. A central angle of the circle intercepts an arc of 12 centimeters. What is the radian measure of the angle?

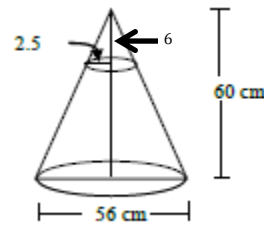
10. Carla put her pencil on the outer edge of a graph of the unit circle at the point  $(1, 0)$ . She moved her pencil tip through an angle of  $\frac{7\pi}{4}$  radians counterclockwise along the edge of the unit circle. At what point on the unit circle did Carla's pencil stop?

11. Given that the two lines in the figure below are parallel, find each of the following values:

- a)  $x$
- b)  $m\angle 5$
- c)  $m\angle 3$
- d)  $m\angle 2$



12. A glass maker is crafting a vase by creating the cone below and cutting the top section off. What will be the volume of the resulting base after the small end of the cone with a radius of 2.5 cm and height of 6 cm is removed?



13. In the diagram of  $\triangle OMP$  and  $\triangle OQN$ ,  $\angle M \cong \angle Q$  and  $\overline{MO} \cong \overline{QO}$ . Based on the diagram, write a proof showing  $\overline{MN} \cong \overline{QP}$ .

