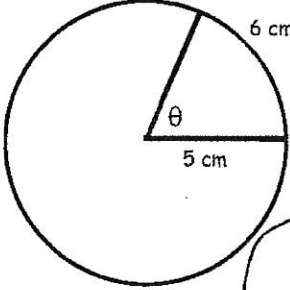
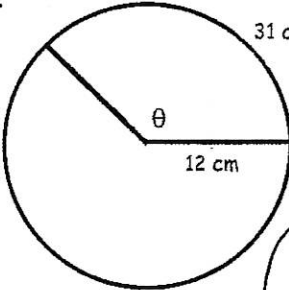
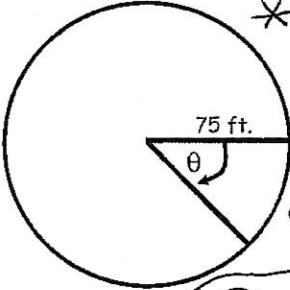


4.1 Homework-Day 3 (Arc Length & DMS)

Find the angle in radians.

<p>1. </p> $S = r\theta$ $6 = 5\theta$ $\frac{6}{5} = \theta$ <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block;"> $\theta = \frac{6}{5} \text{ RADIANS}$ OR 1.2 RADS </div>	<p>2. </p> $S = r\theta$ $31 = 12\theta$ $\frac{31}{12} = \theta$ <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block;"> $\theta = \frac{31}{12} \text{ RADIANS}$ OR 2.583 RADS </div>
<p>3. radius is 7 meters arc length is 32 meters</p> $S = r\theta$ $32 = r\theta$ $32 = 7\theta$ $\frac{32}{7} = \theta$ <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block;"> $\theta = \frac{32}{7} \text{ RADIANS}$ OR 4.571 RADS </div>	<p>4. </p> <p>* negative Δ</p> $S = r\theta$ $60 = 75\theta$ $\frac{60}{75} = \theta$ <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block;"> $\theta = -\frac{4}{5} \text{ RADIANS}$ OR -0.8 RADS </div>

Find the length of the arc.

<p>5. radius is 14 inches central angle θ is 180°</p> $S = r\theta$ $180^\circ \cdot \frac{\pi}{180^\circ} = \pi$ $S = 14\pi$ $\theta = \pi$ <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block;"> $S = 14\pi \approx 43.982 \text{ inches}$ </div>	<p>6. radius is 12 centimeters central angle θ is $\frac{3\pi}{4}$</p> $S = r\theta$ $S = 12 \left(\frac{3\pi}{4} \right)$ <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block;"> $S = 9\pi \approx 28.274 \text{ cm}$ </div>
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Find the radius.

<p>7. arc length is 36 feet central angle θ is $\frac{\pi}{2}$</p> $S = r\theta$ $36 = r \left(\frac{\pi}{2} \right)$ $\frac{2}{\pi} \cdot 36 = r$ $\frac{72}{\pi} = r$ <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block;"> $r = \frac{72}{\pi} \approx 22.918 \text{ ft}$ </div>	<p>8. arc length is 82 miles central angle θ is 135°</p> $135^\circ \cdot \frac{\pi}{180^\circ}$ $\frac{135\pi}{180} = \frac{3\pi}{4}$ $S = r\theta$ $82 = r \left(\frac{3\pi}{4} \right)$ $\frac{4 \cdot 82}{3\pi} = r$ $\frac{328}{3\pi} = r$ <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block;"> $r = \frac{328}{3\pi} \approx 34.802 \text{ mi}$ </div>
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Use your graphing calculator to convert the angle measure to decimal degree form. Round your answer to three decimal places if necessary.

<p>9. $64^{\circ}45'$</p> <p>64.75°</p>	<p>10. $85^{\circ}18'30''$</p> <p>85.308°</p>	<p>11. $-125^{\circ}36''$</p> <p>$-(125^{\circ} + 0' + 36'')$</p> <p>$-125.01$</p>
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Use your graphing calculator to convert the angle measure to $D^{\circ}M'S''$ form.

<p>12. 280.6°</p> <p>$280^{\circ} 36' 0''$</p>	<p>12. -345.12°</p> <p>$-345^{\circ} 7' 12''$</p>	<p>14. -0.355 * RADIANS!</p> <p>$-0.355 \left(\frac{180^{\circ}}{\pi}\right) = (-20.3400173)$</p> <p>Dms \rightarrow $-20^{\circ} 20' 24.006''$</p>
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