

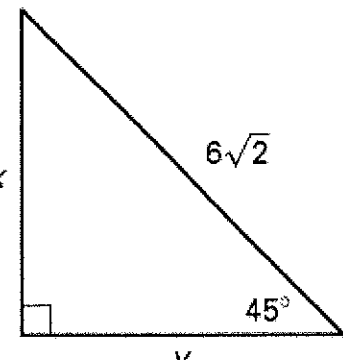
9.1-9.2 Quiz Review
Algebra 2 with Trigonometry

Find the arc length and the area of the sector with:

<p>1. A radius of 2 meters and a central angle of $\theta = \frac{\pi}{2}$</p> <p>$s = r\theta$ $s = 2\left(\frac{\pi}{2}\right)$</p> <p>Arc length: $\pi \text{ m} = 3.14 \text{ m}$</p> <p>$A = \frac{1}{2}r^2\theta$ $A = \frac{1}{2}(2)^2\left(\frac{\pi}{2}\right)$</p> <p>Area of the sector: $\pi \text{ m}^2 = 3.14 \text{ m}^2$</p>	<p>2. A radius of 8 feet and a central angle of $\theta = 135^\circ$</p> <p>$\theta = 135 \cdot \frac{\pi}{180}$ $\theta = \frac{3\pi}{4}$</p> <p>$s = 8\left(\frac{3\pi}{4}\right)$</p> <p>Arc length: $6\pi \text{ ft} = 18.85 \text{ ft}$</p> <p>$A = \frac{1}{2}(8)^2\left(\frac{3\pi}{4}\right)$</p> <p>Area of the sector: $24\pi \text{ ft}^2 = 75.40 \text{ ft}^2$</p>
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Find the exact values of x and y.

3.




$\sin 45^\circ = \frac{x}{6\sqrt{2}}$

$\frac{1}{\sqrt{2}} = \frac{x}{6\sqrt{2}}$

$\frac{\sqrt{2}x}{\sqrt{2}} = \frac{6\sqrt{2}}{\sqrt{2}}$

$x = 6$

$y = 6$



4. A stepladder has an angle of elevation 60° with the front of the house. The length of the stepladder is 24 feet. At what height does the stepladder meet the house?

~~exact value~~
Round 2 decimal places *

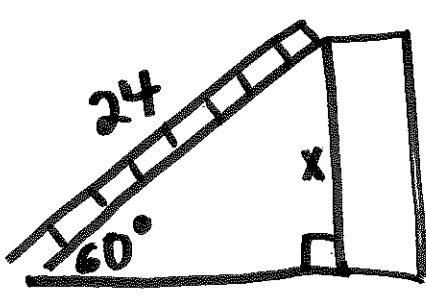
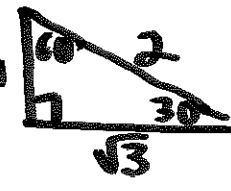
$\sin 60^\circ = \frac{x}{24}$

$\frac{\sqrt{3}}{2} = \frac{x}{24}$

$\frac{2x}{2} = \frac{24\sqrt{3}}{2}$

$x = 12\sqrt{3}$

$12\sqrt{3} \text{ ft} = 20.78 \text{ ft}$

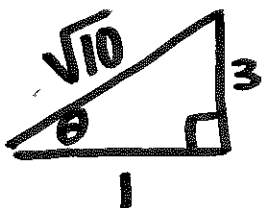
Let θ be an acute angle of a right triangle. Find the value of the other five trigonometric functions of θ . Leave your answers in simplest radical form.

$$7^2 = 4^2 + b^2 \quad b = \sqrt{33}$$

5. $\tan \theta = 3$

$$1^2 + 3^2 = c^2$$

$$\sqrt{10} = c$$

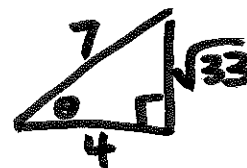


$$\sin \theta = \frac{3}{\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}} = \frac{3\sqrt{10}}{10} \quad \csc \theta = \frac{\sqrt{10}}{3}$$

$$\cos \theta = \frac{1}{\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}} = \frac{\sqrt{10}}{10} \quad \sec \theta = \sqrt{10}$$

$$\tan \theta = 3 \quad \cot \theta = \frac{1}{3}$$

6. $\cos \theta = \frac{4}{7}$



$$\sin \theta = \frac{\sqrt{33}}{7} \quad \csc \theta = \frac{7}{\sqrt{33}} = \frac{7\sqrt{33}}{33}$$

$$\cos \theta = \frac{4}{7} \quad \sec \theta = \frac{7}{4}$$

$$\tan \theta = \frac{\sqrt{33}}{4} \quad \cot \theta = \frac{4}{\sqrt{33}} = \frac{4\sqrt{33}}{33}$$

Solve $\triangle ABC$ using the diagram at the right and the given measurements. Round your answers to one decimal place.

7.

$$\angle A = 37^\circ$$

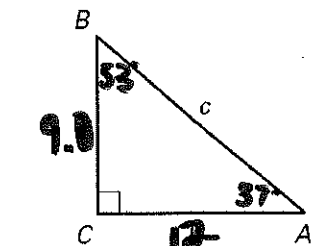
$$\angle B = 53^\circ$$

$$\angle C = 90^\circ$$

$$a = 9.0$$

$$b = 12$$

$$c = 15.0$$



$$\tan 37^\circ = \frac{a}{12}$$

$$\sin 53^\circ = \frac{9.0}{c}$$

8.

$$\angle A = 28^\circ$$

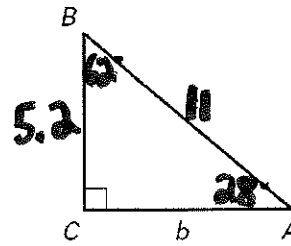
$$\angle B = 62^\circ$$

$$\angle C = 90^\circ$$

$$a = 5.2$$

$$b = 9.7$$

$$c = 11$$



$$\sin 28^\circ = \frac{5.2}{11}$$

$$\sin 62^\circ = \frac{b}{11}$$

Find one positive angle and one negative angle that is coterminal with the given angle.

9. $\frac{13\pi}{5} \pm 2\pi$

Positive angle: $\frac{23\pi}{5}$ (radians) or $\frac{3\pi}{5}$

Negative angle: $-\frac{7\pi}{5}$ (radians)

Find one positive angle and one negative angle that is coterminal with the given angle.

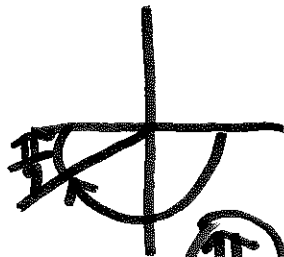
10. $75^\circ \pm 360^\circ$

Positive angle: 435° (degrees)

Negative angle: -285° (degrees)

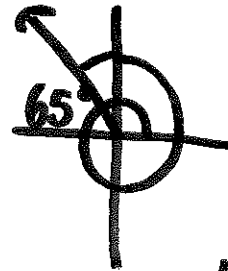
Sketch the angle. Then find its reference angle.

11. $-\frac{8\pi}{9}$



reference angle: $\frac{\pi}{9}$

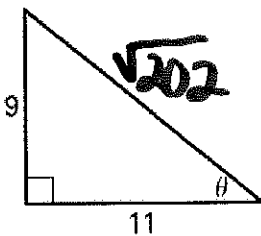
12. 475°



reference angle: 65°

Evaluate the six trigonometric functions of the angle θ . Leave your answers in simplest radical form.

13.



$9^2 + 11^2 = c^2$

$\sin \theta = \frac{9}{\sqrt{202}}$

$\csc \theta = \frac{\sqrt{202}}{9}$

$\cos \theta = \frac{11}{\sqrt{202}}$

$\sec \theta = \frac{\sqrt{202}}{11}$

$\tan \theta = \frac{9}{11}$

$\cot \theta = \frac{11}{9}$