

Lesson 13.2 Worksheet

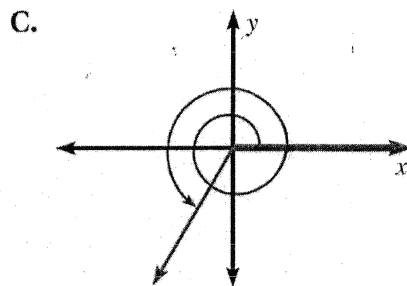
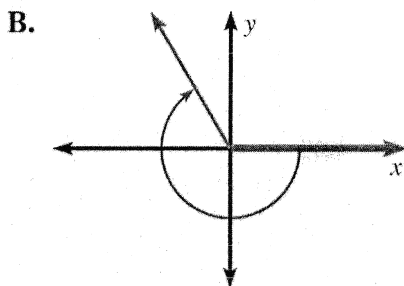
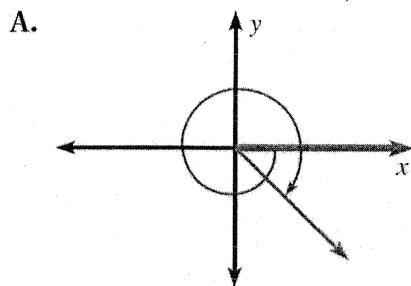
Name: Key

Match the angle measure with the angle.

1.) -240° **B**

2.) 600° **C**

3.) $-\frac{9\pi}{4}$ **A**

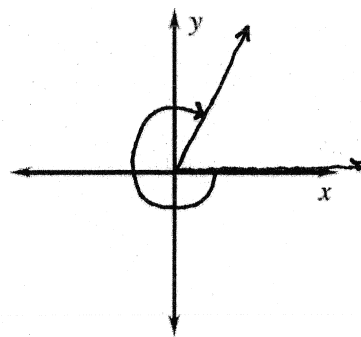
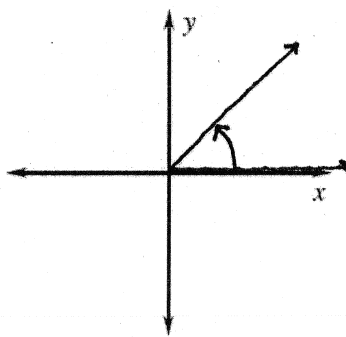
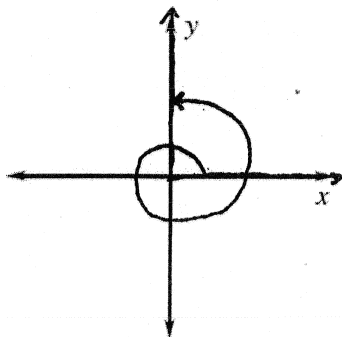


Draw an angle with the given measure in standard position.

4.) 450°

5.) $\frac{5\pi}{18} = 50^\circ$

6.) $-\frac{5\pi}{3} = -300^\circ$



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

7.) 820°
+ Sample Answers
 $460^\circ, 100^\circ, 1180^\circ, \dots$
- Sample Answer
 $-260^\circ, -620^\circ$

8.) -125°
+ Sample Answers
 $235^\circ, 595^\circ, 955^\circ, \dots$
- Sample Answers
 $-485^\circ, -845^\circ, -1205^\circ, \dots$

9.) $\frac{9\pi}{2} \pm \frac{4\pi}{2}$
+ Sample Answers
 $\frac{13\pi}{2}, \frac{5\pi}{2}, \frac{\pi}{2}, \dots$
- Sample Answers
 $-\frac{3\pi}{2}, -\frac{7\pi}{2}, -\frac{11\pi}{2}, \dots$

10.) $-\frac{7\pi}{6} \pm \frac{12\pi}{6}$
+ Sample Answers
 $\frac{5\pi}{6}, \frac{17\pi}{6}, \frac{29\pi}{6}, \dots$
- Sample Answers
 $-\frac{19\pi}{6}, -\frac{31\pi}{6}, -\frac{43\pi}{6}, \dots$

Convert the degree measure to radians or the radian measure to degrees.

11.) 40°
 $40^\circ \cdot \frac{\pi}{180^\circ} =$

12.) -260°
 $-260^\circ \cdot \frac{\pi}{180^\circ} =$

13.) $\frac{\pi}{9}$
 $\frac{\pi}{9} \cdot \frac{180}{\pi} =$

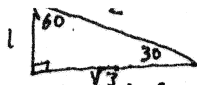
14.) $\frac{14\pi}{15}$
 $\frac{14\pi}{15} \cdot \frac{180}{\pi} =$

$\frac{40\pi}{180} =$
 $\frac{2\pi}{9}$

$\frac{-260\pi}{180} =$
 $-\frac{13\pi}{9}$

$\frac{180^\circ}{9} =$
 20°

$\frac{2520}{15} =$
 168°



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Evaluate the trigonometric function. When possible, give an exact answer. When using a calculator, round answers to the nearest hundredth.

15.) $\sec \frac{\pi}{6} \rightarrow 30^\circ$

16.) $\tan \frac{\pi}{3} \rightarrow 60^\circ$

17.) $\sin \frac{3\pi}{7}$

18.) $\cot \frac{\pi}{8}$

$\sec \theta = \frac{H}{A}$

$\tan \frac{\pi}{3} = \frac{\sqrt{3}}{1}$

$\cot \frac{\pi}{8} = \frac{1}{\tan \frac{\pi}{8}}$

$\sec \frac{\pi}{6} = \frac{2}{\sqrt{3}}$

$\sec \frac{\pi}{6} = \frac{2\sqrt{3}}{3}$

$\tan \frac{\pi}{3} = \sqrt{3}$

$\sin \frac{3\pi}{7} = .97$

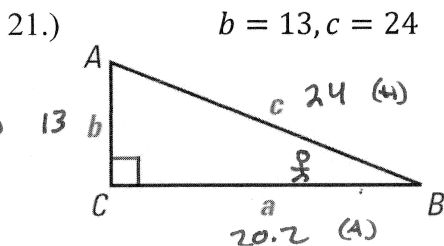
$\cot \frac{\pi}{8} = 2.41$

Find the arc length and area of a sector with the given radius r and central angle θ . Round answers to the nearest hundredth.

19.) $r = 3 \text{ m}, \theta = \frac{5\pi}{12}$

20.) $r = 18 \text{ m}, \theta = 25^\circ$

Solve $\triangle ABC$ using the diagram and the given measurements. Round answers to the nearest tenth, when necessary.



$A = 57.2^\circ$ $a = 20.2$
 $B = 32.8^\circ$ $b = 13$
 $C = 90^\circ$ $c = 24$

$24^2 - 13^2 = a^2$
 $a \approx 20.174...$
 $\sin B = \frac{13}{24}$
 $\sin^{-1}\left(\frac{13}{24}\right) \approx 32.797168...$

22.) A ramp with an incline of 15° is being used to load material into a truck. The tailgate of the truck is 3 feet off of the ground. To the nearest tenth of a foot, find the length of the ramp.

23.) An airplane climbs at an angle of 11° with the ground. Find the ground distance that the plane has covered when it has attained an altitude of 400 feet. Round to the nearest foot.