Name: KEY Hour: _____ Practice

Algebra 2 Ch. 13 Practice Test - Part II - Calculator and Notecard Allowed

1. Convert $\frac{2}{3}\pi$ to degrees.

$\frac{2\pi}{3} \cdot \frac{180}{\pi} = \frac{2\pi}{3_1} \cdot \frac{180^{60}}{\pi} = 120°$

2. A circular lawn is divided into *six equal* sectors. The radius of the lawn is 40 feet.

a. What is the measure of the central angle of one sector of the lawn in degrees and radians?

$\frac{360}{6} = 60°$

$\frac{2\pi}{6} = \frac{\pi}{3}$ radians

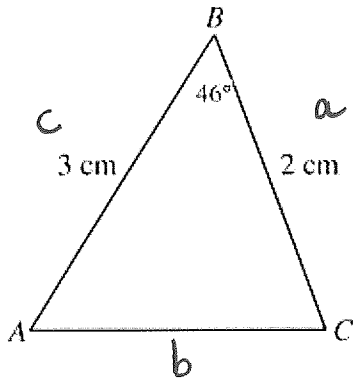
b. Find the area of one sector of the lawn.

$\frac{60}{360} = \frac{x}{\pi r^2}$

$\frac{60}{360} = \frac{x}{\pi(40)^2}$

$x = 837.76 \text{ Ft}^2$

3. Find the area of ΔABC. *The figure is not drawn to scale.*



$\frac{1}{2}(3)(2)\sin 46$

Area = 2.16 cm²

4. Solve the triangle in problem #3.

$b^2 = a^2 + c^2 - 2ac\cos B$

$b^2 = 2^2 + 3^2 - 2(2)(3)\cos 46$

$b = 2.16$

$\frac{\sin 46}{2.16} = \frac{\sin A}{2}$

$A = 41.76$

$\angle A =$ 41.76

$\angle C =$ 92.24

$b =$ 2.16

$\angle C = 180 - (46 + 41.76)$

$= 92.24$

5. Solve $\triangle ABC$ with B = 37°, C = 104°, and b = 7.

$\frac{\sin 37}{7} = \frac{\sin 104}{c}$

$c = 11.3$

$\angle A = 180 - (37 + 104)$

$= 39$

$\frac{\sin 39}{a} = \frac{\sin 37}{7}$

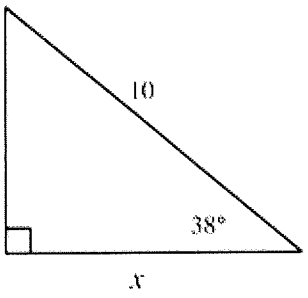
$a = 7.32$

$a = 7.32$

$c = 11.3$

$\angle A = 39$

6. Find x to the nearest hundredth.



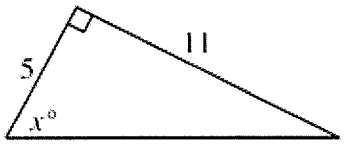
$\cos 38 = \frac{x}{10}$

$10 \cos 38 = x$

$7.88 = x$

$x = 7.88$

7. Solve for x to the nearest degree.



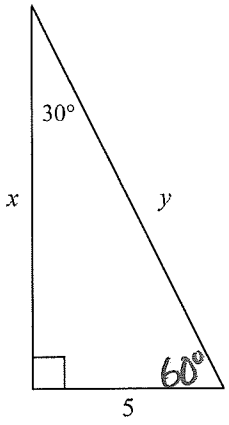
$\tan x = \frac{11}{5}$

$\tan^{-1}\left(\frac{11}{5}\right) = 65.6$

$x = 65.6°$

Find the values of x and y. Leave your answers in simplest radical form. NO DECIMALS!

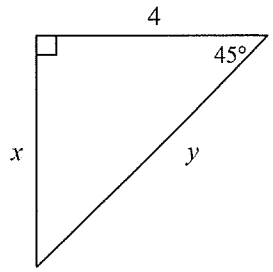
8.



$x = 5\sqrt{3}$ $y = 10$

In a 30-60-90 the short leg is half the hypotenuse. The long leg is $\sqrt{3}$ times the short leg.

9. 45-45-90

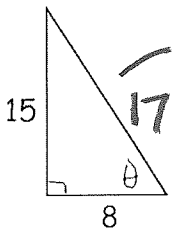


Legs are equal. Hypotenuse is $\sqrt{2}$ times the leg.

x = 4 y = $4\sqrt{2}$

Evaluate the six trigonometric functions of θ.

10.



$c^2 = 15^2 + 8^2$

$c^2 = 289$

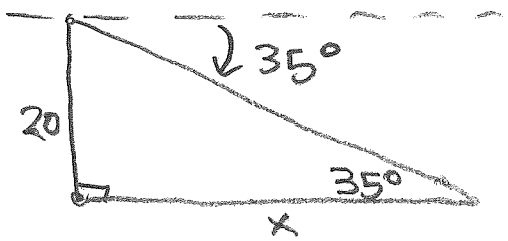
$c = 17$

$\sin\theta = \frac{O}{H} = \frac{15}{17}$ $\csc\theta = \frac{H}{O} = \frac{17}{15}$

$\cos\theta = \frac{A}{H} = \frac{8}{17}$ $\sec\theta = \frac{H}{A} = \frac{17}{8}$

$\tan\theta = \frac{O}{A} = \frac{15}{8}$ $\cot\theta = \frac{A}{O} = \frac{8}{15}$

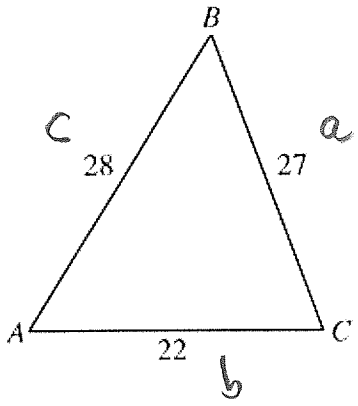
11. A hunter is 20 yards up in a tree stand. She looks down upon a grassy plain below and spots a deer. The angle of depression to the deer is 35°. How far is the deer from the base of the tree?



$\tan 35 = \frac{20}{x}$ $x = \frac{20}{\tan 35}$

$x = 28.6$ yds.

12. Find $\angle C$.



$\angle C =$ _____

$c^2 = a^2 + b^2 - 2ab\cos C$

$28^2 = 27^2 + 22^2 - 2(27)(22)\cos C$

$784 = 1213 - 1188\cos C$

$-1213 \quad -1213$

$-429 = -1188\cos C$

$\frac{-429}{-1188} = \cos C$

$C = 68.8°$

Name_____ Trig Practice Test Part 1

NO CALCULATOR OR NOTES!

Complete each part for each expression:

A. Determine in which quadrant the angle θ lies.
B. Determine the reference angle θ'. (Complete this part only if the angle is not in the first quadrant.)
C. Find the indicated ratio for θ'. This must be an exact value. (Complete this part only if the angle is not in the first quadrant.)
D. Determine the value for the original expression using the ASTC mneumonic.

1. sin 315 A. IV B. 45° C. $\frac{\sqrt{2}}{2}$ D. $-\frac{\sqrt{2}}{2}$

2. $\tan \frac{2\pi}{3}$ A. II B. 60° C. $\sqrt{3}$ D. $-\sqrt{3}$
120°

3. $\cos \frac{5\pi}{6}$ A. II B. 30° C. $\frac{\sqrt{3}}{2}$ D. $-\frac{\sqrt{3}}{2}$
150°

4. $\sin \frac{4\pi}{3}$ A. III B. 60° C. $\frac{\sqrt{3}}{2}$ D. $-\frac{\sqrt{3}}{2}$

5. cos 300 A. IV B. 60° C. $\frac{1}{2}$ D. $\frac{1}{2}$