Pre-Calculus A
Review for Quiz

Name ___KEY___

4.1 to 4.4 Worksheet

List one positive and one negative coterminal angle for:

1) 187 degrees ___547°___ degrees ___−173°___ degrees

2) $\frac{5\pi}{3}$ radians ___$-\frac{\pi}{3}$___ radians ___$\frac{11\pi}{3}$___ radians

3) Find the radius of a circle with a central angle of 60° than intercepts an arc of 12 cm

$S = r\theta$

$\frac{3}{\pi} \cdot 12 = r \frac{\pi}{3} \cdot \frac{3}{\pi}$ $\frac{\pi}{3}$ rad.

$\boxed{\frac{36}{\pi} = r}$

≈ 11.459 cm

4) Find the arc length when a circle of radius 12 m has a central angle of 5π

$S = r\theta$

$= 12 \cdot 5\pi$

$\boxed{S = 60\pi \text{ m}}$

5) A saw blade has a radius of 6 inches (1/2 foot). It rotates at 1000 revolutions per minute. What is the linear speed of the teeth on the edge of the blade (in ft/min)?

$Speed = \frac{S}{t} = \frac{r\theta}{t} = \frac{\frac{1}{2}(2\pi \cdot 1000)}{1 \text{ min}} = \boxed{1000\pi \frac{ft}{min} \approx 3141.5 \frac{ft}{min}}$

6) Find all values that satisfy the equation for θ from $0 \le \theta \le 2\pi$

a. $\sin\theta = \frac{-\sqrt{3}}{2}$ $\theta = \frac{4\pi}{3} ; \frac{5\pi}{3}$

b. $\cos\theta = \frac{\sqrt{2}}{2}$ $\theta = \frac{\pi}{4} ; \frac{7\pi}{4}$

7) Find the values of the following:

a. $\sin 45° =$ ___$\frac{\sqrt{2}}{2}$___

b. $\tan 30° =$ ___ $\frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{2} \cdot \frac{2}{\sqrt{3}} = \boxed{\frac{1}{\sqrt{3}}}$ or $\frac{\sqrt{3}}{3}$
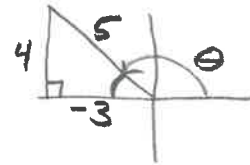
c. $\cos \frac{2\pi}{3} =$ ___$-\frac{1}{2}$___

d. $\cot 2\pi =$ ___$\frac{1}{0}$___ $\Rightarrow$ undefined

8) **Find the values of the sinθ and cosθ given that** $\tan\theta = \frac{-4}{3}$ **and θ is in Q II**

sinθ = $\frac{4}{5}$ cosθ = $-\frac{3}{5}$

9) **Find the exact (no decimals) values of the 6 trig functions of the angle θ in a right triangle if side a = 9 and the hypotenuse = 14.**
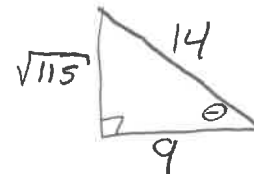
sinθ = $\frac{\sqrt{115}}{14}$ cscθ = $\frac{14}{\sqrt{115}}$

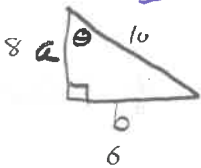cosθ = $\frac{9}{14}$ secθ = $\frac{14}{9}$

tanθ = $\frac{\sqrt{115}}{9}$ cotθ = $\frac{9}{\sqrt{115}}$

10) **Solve for the missing side lengths in a right triangle (round to 4 decimal places) Given side a = 8, and** ~~angle A~~ exact values of all 6 trig functions

& side b = 6

~~Side b~~ _____

$\sin\theta = \frac{6}{10}$ $\csc\theta = \frac{10}{6}$

~~Side c~~ _____

$\cos\theta = \frac{8}{10}$ $\sec\theta = \frac{10}{8}$

$\tan\theta = \frac{6}{8}$ $\cot\theta = \frac{8}{6}$

6 trig Functions (exact values)

11) **Solve for** ~~the missing angles (in degrees)~~ **of right triangle ABC if side b = 4 and side c = 6**

$\sin\theta = \frac{\sqrt{20}}{6}$ $\csc\theta = \frac{6}{\sqrt{20}}$

$\cos\theta = \frac{4}{6}$ $\sec\theta = \frac{6}{4}$ ~~Angle A~~ = _____
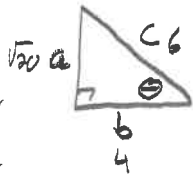
$\tan\theta = \frac{\sqrt{20}}{4}$ $\cot\theta = \frac{4}{\sqrt{20}}$ ~~Angle B~~ = _____

$a^2 + 4^2 = 6^2$

$\frac{36}{-16}$

$a = \sqrt{20}$

12) **The point (-24, 7) is on the terminal side of an angle in standard position. Find the exact values of sine, cosine and tangent of the angle θ.**

sinθ = $\frac{7}{25}$ cosθ = $\frac{-24}{25}$ tanθ = $\frac{7}{-24}$