Chapter 5 Review Packet

1) Simplify to ONE trig function or a number.

a) $\dfrac{\sec^2 x - 1}{\sin^2 x}$

b) $\dfrac{-\sin\left(\dfrac{\pi}{2} - x\right)}{\cos\left(\dfrac{\pi}{2} - x\right)}$

2) Prove the following identities. Be sure to use only ONE side!!

a) $\dfrac{1 + \sin\theta}{\cos\theta} + \dfrac{\cos\theta}{1 + \sin\theta} = 2\sec\theta$

b) $\cos x - \dfrac{\cos x}{1 - \tan x} = \dfrac{\sin x \cos x}{\sin x - \cos x}$

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Use the <u>ANY OF THE FORMULAS</u> for the following questions:

Find the **EXACT value** of the expression- this means no decimals!

3) $\sin(75°)$

4) $\tan 345°$

5) $\cos 285°$

6) $\sin 105°$

7) $\cos 165°$

8) $\tan 22.5°$

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Write the expression as the sine, cosine, or tangent of the angle; you <u>do not</u> have to find the value:

9) $\sin 60°\cos 45° - \cos 60°\sin 45°$

10) $\cos 45°\cos 120° - \sin 45°\sin 120°$

11) $\dfrac{\tan 25° + \tan 10°}{1 - \tan 25°\tan 10°}$

12) $\dfrac{\tan 68° - \tan 115°}{1 + \tan 68°\tan 115°}$

13) Find the **exact value** of the trig function given that

$$\sin u = -\frac{3}{5} \text{ and } \cos v = -\frac{7}{25} \text{ , and where both u and v are in Quadrant III.}$$

$\sin(u - v) =$
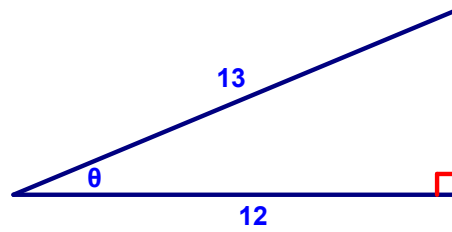
$\cos(u - v) =$

$$\tan(u+v)=$$

14)   Use the figure below to find the exact value of the following trig functions:

$\cos 2\theta =$

$\tan\dfrac{\theta}{2}=$

$\sin 2\theta =$

$\sin\dfrac{\theta}{2}=$

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Rewrite the expressions using one of the formulas:

15) $12 - 24\sin^2 x$

16) $\sqrt{\dfrac{1-\cos 6x}{2}}$

Solve the following Trig Equations to find the ANGLE(S) in domain $[0, 2\pi)$:

17) $\sin^2\theta = \cos^2\theta$

18) $3\sec^2 x - 4 = 0$

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19) $\sin 2x \sin x = \cos x$

20) $\sin 2x + \cos x = 0$