Chapter 5 Review Packet

1) Simplify to ONE trig function or a number.

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

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

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

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

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

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Use the ANY OF THE FORMULAS for the following questions:

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

3) $\sin\left(75°\right)$

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 do not have to find the value:

9) $\sin 60^\circ \cos 45^\circ - \cos 60^\circ \sin 45^\circ$

10) $\cos 45^\circ \cos 120^\circ - \sin 45^\circ \sin 120^\circ$

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

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

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

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

$\sin(u - v) =$

$\cos(u - v) =$

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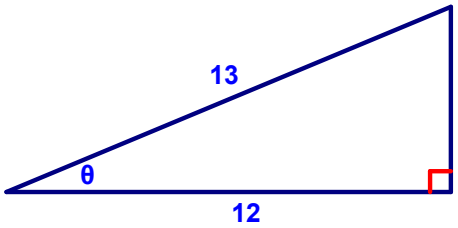
$\tan(u+v)=$

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



$\cos 2\theta =$ $\tan\frac{\theta}{2}=$

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

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Rewrite the expressions using one of the formulas:

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

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

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

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