GSE PreCalculus: Unit 5: Trig Identities **Name** _____
Test 5A Review **Date** _____ **Day** _____

Given that α and β **are in quadrant 4 and** $\sin\alpha = -\frac{4}{5}$ and $\cos\beta = \frac{15}{17}$**, find:**

1. $\cos(\alpha)$

2. $\sin(\beta)$

3. $\sin(\alpha + \beta)$

4. $\cos(\alpha - \beta)$

5. $\cot(\alpha - \beta)$

6. If $\sin\theta = \frac{1}{3}$ and $90° < \theta < 180°$, then find the value of $\sec\theta$

Use sum/difference formulas to find the exact value of the following:

7. $\sin 60° = \sin(90° - 30°)$

8. $\cos 75° = \cos(120° - 45°)$

Write as the sin, cos, or tan of a single angle.

9. $\sin 70° \cos 40° - \cos 70° \sin 40°$

10. $\cos 210° \cos 80° + \sin 210° \sin 80°$

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Verify the following.

1. $\sec\theta\cot\theta = \csc\theta$

2. $\sin\theta\csc\theta - \sin^2\theta = \cos^2\theta$

3. $\sin(x+y) + \sin(x-y) = 2\sin x\cos y$

4. $\dfrac{\csc\theta}{\sec\theta} + \dfrac{\cos\theta}{\sin\theta} = 2\cot\theta$

5. $\dfrac{\sec^2\theta}{\tan\theta} = \sec\theta\csc\theta$

6. $\cos^2 x(1+\tan^2 x) = 1$

7. $1+\sec^2\theta\sin^2\theta = \sec^2\theta$

8. $\dfrac{1}{1-\cos x} - \dfrac{1}{1+\cos x} = 2\csc x\cot x$

9. $\dfrac{\sin^2\theta + 5\sin\theta + 6}{\sin^2\theta - 4} = \dfrac{\sin\theta + 3}{\sin\theta - 2}$

10. $\sin x(1-2\cos^2 x + \cos^4 x) = \sin^5 x$