Trig Identities Review Name_____

Choose 3 of the following identities in each section and verify. Choose any additional problem from any level. You should complete a total of 10 problems. Show all work.

Level 1

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

2. $(sec\beta - 1)(sec\beta + 1) = tan^2\beta$

3. $tan\varphi cot\varphi - cos^2\varphi = sin^2\varphi$

4. $cos^2\theta(1 + tan^2\theta) = 1$

5. $3sin^2 + 4cos^2x = 3 + cos^2x$

6. $(sec\alpha + tan\alpha)(sec\alpha - tan\alpha) = 1$

Level 2

7. $(sin\theta + cos\theta)^2 + (sin\theta - cos\theta)^2 = 2$

8. $1 - \frac{cos^2x}{1+sinx} = sinx$

9. $\frac{1+sin\vartheta}{1-sin\vartheta} = \frac{csc\vartheta+1}{csc\vartheta-1}$

10. $\frac{secx}{cscx} + \frac{sinx}{cosx} = 2tanx$

11. $1 - \frac{sin^2x}{1+cosx} = cosx$

12. $sin\mu(cot\mu + tan\mu) = sec\mu$

Level 3

13. $tan\alpha + cot\alpha - sec\alpha csc\alpha = 0$

14. $\frac{sec\theta-csc\theta}{sec\theta csc\theta} = sin\theta - cos\theta$

15. $tanx = sinxsecx$

16. $tan^2\alpha cos^2\alpha + cot^2\alpha sin^2\alpha = 1$

17. $\frac{cosx}{1+sinx} + \frac{1+sinx}{cosx} = 2secx$

18. $\frac{(sec\sigma-tan\sigma)^2+1}{csc\sigma(sec\sigma-tan\sigma)} = 2tan\sigma$

Trig Identities Review Name_____

Solve each equation in the interval $[0, 2\pi)$. Show all work. Circle the answers.

1. $2sinx - 1 = 0$
2. $\sqrt{3}secx - 1 = 0$
3. $3tan^3x = tanx$
4. $2sin^2x + 3sinx + 1 = 0$
5. $cscx - 2 = 0$
6. $cscx + cotx = 1$
7. $(3\,tan^2x - 1)(tan^2x - 3) = 0$
8. $secx\,cscx = 2cscx$

Find the value using the sum, difference, or double angle identities.

9. sin u = $-\frac{4}{5}$, $\pi < u < \frac{3\pi}{2}$, find cos2u.

10. cos u = $-\frac{2}{3}$, $\frac{\pi}{2} < u < \pi$; sin v = $\frac{4}{5}$, $0 \le v \le \frac{\pi}{2}$, find sin(u – v).

11. tan u = $\frac{3}{4}$, $0 < u < \frac{\pi}{2}$; cos v = $-\frac{4}{5}$, $\frac{\pi}{2} \le v \le \frac{3\pi}{2}$, find sin(u + v) and cos(u – v).

Use the sum, difference, or double angle identities to find the following values.

12. cos 105°.

13. sin 195°.

14. cos 255°.

15. sin 285°.