Name _____ Date _____

Practice 8.4: Sum & Difference Formulas

Use the Sum and Difference Formulas to find the exact values of the following trig functions. Show your work.

1. $\cos 75°$ *use* $30° + 45° = 75°$

2. $\sin 15°$ *use* $45° - 30° = 15°$

3. $\tan 105°$ *use* $60° + 45° = 105°$

4. $\cos 195°$ *use* $225° - 30° = 195°$

5. $\sin \frac{7\pi}{12}$ *use* $\frac{\pi}{3} + \frac{\pi}{4} = \frac{7\pi}{12}$

6. $\tan 255°$ *use* $300° - 45° = 255°$

7. Use the Sum and Difference Formulas to write the trig function of an angle.

a. $\cos 25° \cos 15° - \sin 25° \sin 15° =$

b. $\sin 140° \cos 50° - \cos 140° \sin 50° ° =$

c. $\dfrac{\tan 325° - \tan 86°}{1 + \tan 325° \tan 86°} =$

d. $\cos \frac{\pi}{7} \cos \frac{\pi}{5} - \sin \frac{\pi}{7} \sin \frac{\pi}{5} =$

8. Find the exact value of the trig functions given that.

$\sin u = \frac{5}{13}$ $\quad 0 < u < \frac{\pi}{2}$ **and** $\cos v = -\frac{3}{5}$ $\quad \frac{\pi}{2} < u < \pi$

a. $\sin(u + v)$ **b.** $\cos(u + v)$

c. $\sin(u - v)$ **d.** $\cos(u - v)$

9. Find the exact value of the trig functions given that.

$\sin u = \frac{7}{25}$ $\quad \frac{\pi}{2} < u < \pi$ **and** $\cos v = \frac{4}{5}$ $\quad \frac{3\pi}{2} < u < 2\pi$

a. $\sin(u + v)$ **b.** $\cos(u + v)$

c. $\sin(u - v)$ **d.** $\cos(u - v)$

Verify the identities.

10. $\sin(\frac{\pi}{2} + x) = \cos x$

11. $\sin(3\pi - x) = \sin x$

12. $\cos(\pi - \theta) + \sin(\frac{\pi}{2} + \theta) = 0$

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

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