Name: _____ Date: _____ Pd: _____

Sum and Difference Formulas

$\cos(x+y) = \cos(x)\cos(y) - \sin(x)\sin(y)$ $\quad\quad$ $\sin(x+y) = \sin(x)\cos(y) + \sin(y)\cos(x)$

$\cos(x-y) = \cos(x)\cos(y) + \sin(x)\sin(y)$ $\quad\quad$ $\sin(x-y) = \sin(x)\cos(y) - \sin(y)\cos(x)$

Find each value if $0 \le x \le \frac{\pi}{2}$ **and** $0 \le y \le \frac{\pi}{2}$

1. cos(x+y) if $\cos(x) = \frac{4}{5}$ *and* $\sec(y) = \frac{13}{12}$

2. sin(x-y) if $\sin(x) = \frac{1}{5}$ *and* $\csc(y) = \frac{25}{7}$

3. cos (x-y) if $\tan(x) = \frac{6}{5}$ *and* $\sec(y) = 5$

4. sin (x+y) if $\tan(x) = 3$ *and* $\sec(y) = \sqrt{3}$

5. cos (x+y) if $\sin(x) = \frac{1}{3}$ *and* $\cos(y) = \frac{5}{7}$

6. sin(x-y) if $\sec(x) = 11$ *and* $\sec(y) = 5$

*Challenge: For #5, find csc(x-y) and sec(x+y)