Name: _____

Sum and Difference Formulas

Exercise 1: Find the exact value of the expression

1) $\cos 105^0$
2) $\sin 15^0$
3) $\tan 75^0$
4) $\cos\frac{11\pi}{12}$
5) $\sin\frac{23\pi}{12}$
6) $\tan\frac{7\pi}{12}$
7) $\sin\frac{5\pi}{12}$
8) $\sin\left(-\frac{11\pi}{12}\right)$
9) $\cos\frac{\pi}{12}$
10) $\tan\left(-\frac{5\pi}{12}\right)$
11) $\cos\frac{17\pi}{12}$
12) $\tan\frac{11\pi}{12}$

Exercise 2: Solve the equation for $0 \le x < 2\pi$

1) $2\sin\left(x+\frac{\pi}{3}\right)=\tan\frac{\pi}{3}$
2) $\tan\left(x+\frac{\pi}{6}\right)=\tan\left(x+\frac{\pi}{4}\right)$
3) $\cos\left(x-\frac{\pi}{6}\right)=1+\cos\left(x+\frac{\pi}{6}\right)$
4) $\sin\left(x-\frac{4\pi}{3}\right)=2\sin\left(x-\frac{\pi}{3}\right)$
5) $4\sin(x+\pi)=2\cos\left(x+\frac{\pi}{2}\right)+2$
6) $-\cos x=1+2\cos(x-\pi)$

Exercise 3: Evaluate the expression given that $\sin u=\frac{3}{5}$ with $\frac{\pi}{2}<u<\pi$ and $\cos v=-\frac{5}{6}$ with $\pi<v<\frac{3\pi}{2}$

1) $\sin(u+v)$
2) $\cos(u+v)$
3) $\sin(u-v)$
4) $\cos(u-v)$
5) $\tan(u+v)$
6) $\tan(u-v)$