

Name _____

Date _____

Advanced Algebra

Chapter 10 Assignment #24 Sum and Difference Formulas:

Review on factoring: Simplify the following fractions:

1) $\frac{1-x^2}{1-x}$ 2) $\frac{4-x^2}{2-x}$ 3) $\frac{16-x^2}{4-x}$ 4) $\frac{25-x^2}{5-x}$ 5) $\frac{1-\sin^2}{1-\sin}$ 6) $\frac{4-\cos^2}{2-\cos}$
7) $\frac{100-\tan^2}{10+\tan}$

: Sum and Difference Formulas:

Sin (u+v) = sinucosv+cosusinv

Sin (u-v) = sinucosv-cosusinv

Cos(u+v)=coucosv-sinusinv

Cos(u-v)=cosucosv+sinusinv

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

- 1) Find the exact value of sin75
- 2) Find the exact value of sin15
- 3) Find the exact value of cos105
- 4) Find the exact value of sin345
- 5) Find the exact value of cos255
- 6) Find the exact value of cos375

Simplify the following expressions. DO not evaluate it.

- 1) $\cos 35 \cos 15 - \sin 35 \sin 15$
- 2) $\sin 110 \cos 50 + \cos 110 \sin 50$
- 3) $\sin 4 \cos 2.2 - \cos 4 \sin 2.2$
- 4) $\cos 50 \cos 100 - \sin 50 \sin 100$

Solving Trig Equations for $0 \leq x < 2\pi$

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

Review Equations: $0 \leq x < 2\pi$

1) $\sqrt{2} \cos x - 1 = 0$ 2) $7 \sec x - 7 = 0$
3) $3 \sin x = \sin x + 1$ 4) $5 \cos x - \sqrt{3} = 3 \cos x$
5) $2 \csc x + 17 = 15 + \csc x$ 6) $\cos x - 1 = -\cos x$