Show all work and simplify all answers before circling/boxing them. If you do the problem incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for full credit.

Due next class. Students who turn assignments in late (or do not attempt a problem) forfeit their ability to rewrite those problems for credit.

1. Find $\cos\frac{5\pi}{12}$ using sum/difference identities.

2. Simplify using sum/difference identities: $\frac{\tan(x+y)-\tan y}{1+\tan(x+y)\tan y}$

3. Simplify using sum/difference identities: $\cos(x-y)\cos y - \sin(x-y)\sin y$

4. If $\sin\alpha = \frac{3}{5}$ and $\sin\beta = \frac{5}{13}$, where both α and β are in quadrant I, find $\sin(\alpha+\beta)$, $\cos(\alpha+\beta)$ and $\tan(\alpha+\beta)$.

5. If $\tan\alpha = \frac{3}{4}$ and $\cos\beta = -\frac{4}{5}$, where α is in quadrant I and β is in quadrant III, find $\sin(\alpha+\beta)$, $\cos(\alpha+\beta)$ and $\tan(\alpha+\beta)$.

6. Verify the identity: $\tan(x-y) - \tan(y-x) = \frac{2(\tan x - \tan y)}{1+\tan x\tan y}$

7. Verify the identity: $\frac{\cos(x-y)}{\cos(x+y)} = \frac{1+\tan x\tan y}{1-\tan x\tan y}$