

Precalculus Unit 7 – 7.3 Homework
Sum and Difference/Double Angle Formulas

1. Find the exact value of each expression:

a. $\sin\left(\frac{\pi}{6} + \frac{\pi}{3}\right)$

b. $\sin\frac{\pi}{6} + \sin\frac{\pi}{3}$

2. Verify: $\sin(x + \pi) \cdot \sin(x - \pi) = \sin^2 x$

3. Given that $\sin u = \frac{5}{13}$ and $\cos v = \frac{-3}{5}$ and that both u and v are in quadrant II, find the exact value of $\tan(u + v)$.

4. Given that $\sin u = \frac{-7}{25}$ and $\cos v = \frac{-4}{5}$ and that both u and v are in quadrant III, find the exact value of $\cos(u + v)$.

5. Verify: $\tan(x + \pi) - \tan(\pi - x) = 2 \tan x$

6. Verify: $\cos(x + y) + \cos(x - y) = 2 \cos x \cos y$

7. Verify: $\frac{\cot \theta - \tan \theta}{\cot \theta + \tan \theta} = \cos(2\theta)$

8. Verify: $(\sin \theta + \cos \theta)^2 = 1 + \sin(2\theta)$

