

**Sum and Difference Identities WS 3 – Tangent**

Find the exact value of each expression.

1.  $\tan\left(\frac{\pi}{4} + \frac{\pi}{3}\right)$

2.  $\tan\frac{\pi}{4} + \tan\frac{\pi}{3}$

Find the exact value of the trigonometric function given the following:

$$\sin u = \frac{5}{13}, \quad 0 < u < \frac{\pi}{2} \quad \text{and} \quad \cos v = -\frac{3}{5}, \quad \frac{\pi}{2} < v < \pi$$

3.  $\tan(u + v)$

4.  $\tan(u - v)$

Use the sum and difference formulas to write the expression as the sine, cosine, or tangent of a single angle.

5.  $\cos 40^\circ \cos 15^\circ - \sin 40^\circ \sin 15^\circ$

6.  $\sin 340^\circ \cos 50^\circ - \cos 340^\circ \sin 50^\circ$

7.  $\frac{\tan 325^\circ - \tan 86^\circ}{1 + \tan 325^\circ \tan 86^\circ}$