

**Sum and Difference Identities WS 1 – Sine**

Find the exact value of each expression.

1.  $\sin\left(\frac{7\pi}{6} - \frac{\pi}{3}\right)$

2.  $\sin\frac{7\pi}{6} - \sin\frac{\pi}{3}$

Use the sum and difference formulas to find the exact values of the sine of the angle.

3.  $75^\circ = 30^\circ + 45^\circ$

4.  $105^\circ = 60^\circ + 45^\circ$

5.  $195^\circ = 225^\circ - 30^\circ$

6.  $\frac{11\pi}{12} = \frac{3\pi}{4} + \frac{\pi}{6}$

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

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

7.  $\sin(u + v)$

8.  $\sin(u - v)$