

For each of the following, find the measure of the angle based on the sum or difference of an angle found on your unit circle. Example:  $15^\circ = 60^\circ - 45^\circ$ . Keep the proper format (radians vs. degrees).

1.  $105^\circ$   $150^\circ - 45^\circ$   
 $60^\circ + 45^\circ$

2.  $-15^\circ$   $210^\circ - 225^\circ$   $30^\circ - 45^\circ$   
 $45^\circ - 60^\circ$

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

4.  $285^\circ$   $315^\circ - 30^\circ$

5.  $195^\circ$   $150^\circ + 45^\circ$   
 $330^\circ - 135^\circ$

6.  $255^\circ$   $225^\circ + 30^\circ$   
 $300^\circ - 45^\circ$

7.  $\frac{\pi}{12}$   $\frac{4\pi}{12} - \frac{8\pi}{12} = \frac{\pi}{3} - \frac{\pi}{4}$

8.  $\frac{7\pi}{12}$   $\frac{4\pi}{12} + \frac{3\pi}{12} = \frac{\pi}{3} + \frac{\pi}{4}$

9.  $\frac{5\pi}{12}$   $\frac{10\pi}{12} + \frac{9\pi}{12} = \frac{5\pi}{6} + \frac{3\pi}{4}$

10.  $-\frac{\pi}{12}$   $\frac{3\pi}{12} - \frac{4\pi}{12} = \frac{\pi}{4} - \frac{\pi}{3}$

## Sum and difference formulas

$$\sin(u \pm v) = \sin u \cos v \pm \cos u \sin v$$

$$\cos(u \pm v) = \cos u \cos v \mp \sin u \sin v$$

$$\tan(u \pm v) = \frac{\tan u \pm \tan v}{1 \mp \tan u \tan v}$$