

Name: \_\_\_\_\_

**Product – to – Sum Formulas**

1) Use the product – to – sum formulas to write the product as a sum or difference

1)  $4\cos\frac{\pi}{3}\sin\frac{5\pi}{6}$

2)  $\cos 2\theta \cos 4\theta$

3)  $\sin(x + y)\cos(x - y)$

4)  $\sin(x + \pi)\sin(x - \pi)$

5)  $3\sin 2x \sin 3x$

6)  $6\sin 45^\circ \cos 15^\circ$

7)  $\cos 4\theta \sin 6\theta$

8)  $6\sin\frac{\pi}{4}\cos\frac{\pi}{4}$

9)  $\sin(x + y)\sin(x - y)$

10)  $5\cos(-5x)\cos 3x$

11)  $\cos(\theta - \pi)\cos(\theta + \pi)$

12)  $10\cos 75^\circ \cos 15^\circ$

2) Find the value of  $\cos 37.5^\circ \cdot \sin 37.5^\circ$