

## 6.2 In-class Practice

1. Rewrite as function of one angle.

a)  $\cos 48^\circ \cos 23^\circ + \sin 48^\circ \sin 23^\circ$

b)  $\cos 13^\circ \cos 50^\circ - \sin 13^\circ \sin 50^\circ$

c)  $\cos 10^\circ \sin 5^\circ - \sin 10^\circ \cos 5^\circ$

d)  $\sin 57^\circ \cos 4^\circ + \cos 57^\circ \sin 4^\circ$

2. Find the exact value of each expression.

a)  $\cos 75^\circ$

b)  $\tan 285^\circ$

3. If  $\cos \alpha = \frac{24}{25}$  and  $\sin \alpha < 0$ , find the exact value of  $\cos\left(\alpha + \frac{\pi}{6}\right)$ .

4. If  $\alpha$  and  $\beta$  are acute angles such that  $\cos \alpha = \frac{4}{5}$  and  $\tan \beta = \frac{8}{15}$ , find

a)  $\sin(\alpha + \beta)$

b)  $\cos(\alpha + \beta)$

c) the quadrant containing  $\alpha + \beta$

5. Verify the reduction formula.

a)  $\sin\left(x + \frac{\pi}{2}\right) = \cos x$

b)  $\cos\left(x + \frac{\pi}{2}\right) = -\sin x$

c)  $\tan\left(x + \frac{\pi}{2}\right) = -\cot x$

6. Verify the identity.

a)  $\sin 10\theta = 2 \sin 5\theta \cos 5\theta$

b)  $\cos^2 3x - \sin^2 3x = \cos 6x$

c)  $4 \sin \frac{x}{2} \cos \frac{x}{2} = 2 \sin x$

d)  $\frac{\sin^2 2\alpha}{\sin^2 \alpha} = 4 - 4 \sin^2 \alpha$

e)  $(\sin t + \cos t)^2 = 1 + \sin 2t$

f)  $\cos^4 x - \sin^4 x = \cos 2x$