

Refer to the identities on pages 41-42 of your text.

1. Use the angle sum formulas on page 42 to derive these new angle difference identities. HINT: replace B with $(-B)$.

a. $\cos(A - B) = \cos A \cos B + \sin A \sin B$

b. $\sin(A - B) = \sin A \cos B - \cos A \sin B$

2. Express the following exactly in terms of $\sin x$ and $\cos x$.

a. $\sin(2\pi - x)$

b. $\cos\left(\frac{3\pi}{2} + x\right)$

c. Evaluate $\sin \frac{7\pi}{12}$ as $\sin\left(\frac{\pi}{4} + \frac{\pi}{3}\right)$

3. Use the double angle formulas to evaluate these.

a. $\cos^2 \frac{\pi}{12}$

b. $\sin^2 \frac{\pi}{8}$

4. In radians when x is quite small, $\sin(x)$ is very close to x , and $\cos(x)$ is very close to 1.0

Estimate $\sin(.08)$ using the double angle formulas from the approximations:

$$\sin(.01) = .01 \text{ and } \cos(.01) = 1.0$$