Workshop Exercises: Trigonometry

Solutions:

2. a) $-\frac{\sqrt{2}}{2}$

b) -2

c) $-\frac{\sqrt{3}}{3}$

d) $\frac{\sqrt{2}}{2}$

e) $\frac{\sqrt{2}}{2}$

f) $-\sqrt{3}$

g) 2

h) $-\frac{1}{2}$

3. a) $x = \frac{\pi}{3} + 2n\pi,\ \frac{2\pi}{3} + 2n\pi,$ n any integer

b) $x = \frac{\pi}{6} + n\pi,\ \frac{\pi}{3} + n\pi$

c) $x = \frac{\pi}{6}, \frac{\pi}{3}, \frac{7\pi}{6}, \frac{4\pi}{3}$

d) $x = \frac{\pi}{12} + n\pi,\ \frac{5\pi}{12} + n\pi,\ \frac{3\pi}{4} + n\pi$

3. (Optional) Solve the following trigonometric equations. If no domain is indicated, find all solutions.

   a) $2 \sin x = \sqrt{3}$.

   b) $2 \sin 2 x = \sqrt{3}$.

   c) $2 \sin 2 x = \sqrt{3}$ for x in $[0, 2\pi)$.

   d) $2 \sin^2 2 x + \sin 2 x = 1$.

4. Graph the 6 trigonometric functions.