Cambridge Senior Mathematics for the Australian Curriculum/VCE
Chapter 14 Circular functions: **Assignment**

1   Convert each of the following to radians:

   a   120°   **b**   135°   **c**   225°

2   Convert each of the following to degrees:

   a $\dfrac{13\pi}{4}$ **b** $\dfrac{23\pi}{9}$ **c** $\dfrac{31\pi}{4}$
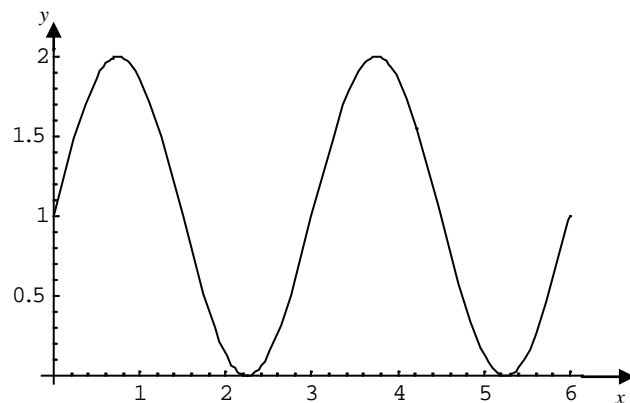
3   Write down the period, amplitude and range of each of the following:

   a $f(t) = 3\sin(\pi t)$

   b $f(t) = 5\cos\left(\dfrac{2\pi t}{3}\right) + 6$

   c $f(x) = -5\sin\left(\dfrac{3\pi x}{5}\right) - 7$

4   The graph shown has rule $y = \sin(nx) + c$. Find the values of n and c.

5   Solve each of the following equations for x, where $0 \le x \le 2\pi$.

   a $\sin\left(2x + \dfrac{\pi}{3}\right) = 0.5$

   b $\cos\left(x + \dfrac{\pi}{4}\right) = \dfrac{-\sqrt{3}}{2}$

   c $\tan(2x) = 1$

6   Solve the equation $2\sin(2\pi x) = -1$ for $x \in [0, 2]$.

7   Find the general solution to each of the following equations.

   a $\sin(x) = \dfrac{1}{2}$

    b $2\cos(x) = \sqrt{2}$