5.4 - Graphs of Sine and Cosine
Review Problems

1. Simplify the following:

    (a) $\dfrac{3}{\pi} \div \dfrac{9}{2}$ (b) $\dfrac{\frac{2\pi}{5}}{\frac{1}{4}}$

2. Use transformations of graphs (translation, reflection, stretch, compresssion) to sketch the graphs of the following:

    (a) $y = -(x-3)^2 + 8$ (b) $y = 3\sqrt{-x+2} - 5$

3. Evaluate the following:

    (a) $\cos \dfrac{4\pi}{3}$ (b) $\sin -\dfrac{3\pi}{2}$ (c) $\cos(5\pi)$

Basic Knowledge

4. Sketch the graph of each given equation over the interval $[-2\pi, 2\pi]$.

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

    (b) $y = -5\cos\left(\dfrac{1}{3}(x + \pi)\right)$

Intermediate Knowledge

5. The number of deer in a region is given by $D(t) = 450\sin\dfrac{\pi t}{5} + 1200$, where t is in years.

    (a) Sketch the graph of function D

    (b) What are the largest and smallest numbers of deer present in the region at any time?

    (c) How much time elapses betwen occurrences of the largest and the smallest deer population?

Advanced Knowledge

6. Find an equation of a sine function from the given graph: