Name: _____

Score: _____ /15

Worksheet 20 (Due Thurs, May 29)

Math 1060Q – Summer 2014

Professor Hohn

Three questions will be chosen randomly to be graded. You must show all of your work to receive full credit!

1. Let $f(x) = 3\sin(x)$
   (a) What is the range of f?

   (b) What is the amplitude of f?

   (c) What is the period of f?

   (d) Sketch two cycles of $\sin(x)$ and f on the same graph.

2. Let $f(x) = 4\cos(x + \frac{\pi}{3})$

   (a) What is the range of f?

   (b) What is the amplitude of f?

   (c) What is the period of f?

   (d) Sketch two cycles of $4\cos(x)$ and f.

3. Let $f(x) = 2\cos(x) - 4$

   (a) What is the range of f?

   (b) What is the amplitude of f?

   (c) What is the period of f?

   (d) Sketch two cycles of $\cos(x)$ and f.

4. Let $f(x) = -\sin(x)$

   (a) What is the range of f?

   (b) What is the amplitude of f?

   (c) What is the period of f?

   (d) Sketch two cycles of f.

5. Let $f(x) = 5\cos(\pi x)$

   (a) What is the range of f?

   (b) What is the amplitude of f?

   (c) What is the period of f?

   (d) Sketch two cycles of f.

6. Let $f(x) = 6\cos(\frac{\pi}{3}x + \frac{8\pi}{5})$.

(a) What is the range of f?

(b) What is the amplitude of f?

(c) What is the period of f?

(d) Sketch f on the interval $[-9, 9]$.

7. Assume $f(x) = a\cos(bx + c) + d$ where a, b, c, d are constants. Find values of a and d with $a > 0$, so that f has range $[3, 11]$.

8. Assume $f(x) = a\cos(bx + c) + d$ where a, b, c, d are constants. Find values of a, b, c, d with $a > 0$ and $b > 0$ and $0 \leqslant c \leqslant \pi$, so that f has range $[-8, 6]$, $f(0) = -2$ and f has period 8.