Name: _____

Math 32, Spring 2010, Section 101
Quiz 9

(1) (3 pts) Use half-angle identities (given below) to compute (a) $\sin 105\,^\circ$ and (b) $\cos 105\,^\circ$. Recall that "$\pm$" in half-angle formulas doesn't mean plus *and* minus, it means plus *or* minus, and you have to figure out which one.

Identities: $\boxed{\sin\frac{\theta}{2} = \pm\sqrt{\frac{1-\cos\theta}{2}}, \quad \cos\frac{\theta}{2} = \pm\sqrt{\frac{1+\cos\theta}{2}}, \quad \tan\frac{\theta}{2} = \frac{\sin\theta}{1+\cos\theta}.}$

(2) (3 pts) Evaluate each of the quantities that is defined. If a quantity is undefined, say so.

(a) $\sin^{-1}(\sqrt{3}/2)$ (b) $\cos(\cos^{-1}(\frac{3}{4}))$ (c) $\arccos(\cos(2\pi))$

(3) (4 pts) Determine the amplitude, period , and phase shift for the function

$$y = 3\cos\left(\frac{2x}{3} + \frac{\pi}{6}\right).$$

Graph the function over one period. Indicate the x-intercepts and the x-coordinates of the highest and lowest points on the graph.