Math 123 Exam 3B

December 6, 2010 Professor Ilya Kofman

NAME: _____

No calculators on pages 1-2.

1. Find the exact value:

(a) $\cos(\frac{4\pi}{3}) =$_____

(b) $\sin(\frac{7\pi}{6}) =$_____

(c) $\tan(-\frac{\pi}{4}) =$_____

(d) $\csc(\frac{5\pi}{4}) =$_____

(e) $\sec(\frac{5\pi}{6}) =$_____

(f) $\cos(180°) =$_____

(g) $\sin(-45°) =$_____

(h) $\tan(120°) =$_____

(i) $\csc(210°) =$_____

(j) $\sec(270°) =$_____

2. If $\sin t = -\frac{3}{5}$, with terminal point $P(t)$ in quadrant III, find the exact value:

(a) $\cos t =$_____

(b) $\tan t =$_____

(c) $\sec t =$_____

(d) $\csc t =$_____

3. Let $y = 3\sin(4x)$.

(a) amplitude=_____ **(b)** period=_____ **(c)** phase shift=_____

(d) sketch the graph:

4. Let $y = 5\cos(2x + \frac{\pi}{3})$.

(a) amplitude=_____ **(b)** period=_____ **(c)** phase shift=_____

(d) sketch the graph:

5. Let $y = \tan(x + \frac{\pi}{3})$.

(a) amplitude=_____ **(b)** period=_____ **(c)** phase shift=_____

(d) sketch the graph:

6. From a 10 g sample, radioactive Substance Y decayed to 3.5 g after 10 days.

(a) Find the function $A(t)$ that models the mass of Substance Y.

(b) Find the half-life of Substance Y.

(c) Find the mass remaining after 15 days.

(d) After how many days will only 2 g remain?