

## Math 150 Week-in-Review 9 Answer Key

1. (a)  $\frac{-\sqrt{2} - \sqrt{6}}{4}$   
 (b)  $-2 + \sqrt{3}$
2.  $\sin 2x = -\frac{4\sqrt{5}}{9}$ ;  $\cos 2x = \frac{1}{9}$ ;  $\tan 2x = -4\sqrt{5}$
3.  $\frac{\sqrt{2 + \sqrt{3}}}{2}$
4.  $\sin \frac{x}{2} = \sqrt{\frac{1 + \frac{2}{\sqrt{29}}}{2}}$ ;  $\cos \frac{x}{2} = -\sqrt{\frac{1 - \frac{2}{\sqrt{29}}}{2}}$ ;  $\tan \frac{x}{2} = \frac{2 + \sqrt{29}}{-5}$
5.  $\frac{\sqrt{2}}{2}$
6. See Full Solutions
7. (a)  $\frac{5\pi}{6}$   
 (b)  $-\frac{\pi}{4}$   
 (c)  $-\frac{\pi}{3}$   
 (d)  $\sqrt{10}$   
 (e)  $\frac{5\sqrt{11}}{7}$
8.  $\frac{2x}{x^2+1}$
9. (a)  $u = \frac{\pi}{6} + 2k\pi, \frac{5\pi}{6} + 2k\pi, \frac{3\pi}{2} + 2k\pi$   
 (b)  $x = \frac{\pi}{6} + k\pi, \frac{5\pi}{6} + k\pi, \frac{\pi}{4} + k\pi$   
 (c)  $x = \frac{3\pi}{4} + 6k\pi, \frac{9\pi}{4} + 6k\pi, \frac{15\pi}{4} + 6k\pi, \frac{21\pi}{4} + 6k\pi$
10. (i):  $x = \frac{4\pi}{9} + \frac{2k\pi}{3}, \frac{5\pi}{9} + \frac{2k\pi}{3}$   
 (ii):  $x = \frac{4\pi}{9}, \frac{5\pi}{9}, \frac{10\pi}{9}, \frac{11\pi}{9}, \frac{16\pi}{9}, \frac{17\pi}{9}$