

Math 135, Quiz # 1 Solutions, January 27, 2014

1. Express the following angles in radians: $30^\circ, 45^\circ, 60^\circ, 90^\circ, 180^\circ, 270^\circ$. Compute the sin of each of these angles.

Solution: The angles in radians are, respectively, $\pi/6, \pi/4, \pi/3, \pi/2, \pi, 3\pi/2$. The sin of these angles are, respectively, $1/2, \sqrt{2}/2, \sqrt{3}/2, 1, 0, -1$.

2. Compute $\sin^2(\pi/6) + \cos^2(\pi/6)$. Recall that $\sin^2(x) = (\sin(x))^2$.

Solution: Recall that for all x , $\sin^2(x) + \cos^2(x) = 1$. So the answer is 1.

3. Find all values of x that satisfy $|3x - 6| < 9$. Write your answer in interval notation.

Solution: We can write this as the two-sided inequality $-9 < 3x - 6 < 9$. Adding 6 to both sides we get $-3 < 3x < 15$. Dividing by 3 we have $-1 < x < 5$. In interval notation this is $(-1, 5)$.

4. Find the equation of a line parallel to $y = 2x + 5$ that passes through the point $(5, 13)$.

Solution: The slope of the line is 2. Using point-slope form, the equation is $y - 13 = 2(x - 5)$.