Math 1613 - Trigonometry

Quiz #1 - 2007.08.30

Solutions

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1. Compute the distance $d(P_1, P_2)$ between the points $P_1(5, 6)$ and $P_2(3, -1)$.

$$d(P_1, P_2) = \sqrt{(5-3)^2 + (6-(-1))^2} = \sqrt{2^2 + 7^2} = \sqrt{53}$$

2. Find an equation of the circle that has center $C(-2, 1)$ and radius 4.

The equation is given by $(x+2)^2 + (y-1)^2 = 16$.

3. Find an equation of the circle that has center $C(-2, 1)$ and goes through the point $D(-2, -3)$.

One can go through a lot of work on this one, or one can recognize the fact that since the x-coordinate is the same, and realize that $d(C, D) = 4$. The equation of the circle is given by $(x+2)^2 + (y-1)^2 = 16$.

4. If $x > -2$, rewrite $|x+3|$ without using the absolute value symbol.

If $x > -2$, then the quantity $x + 3 > 0$, therefore, $|x+3| = x+3$.

5. Solve the equation $(2x-3)\left(x^2 - 3x - 4\right) = 0$.

Using the product of zeros rule, we have $2x - 3 = 0$ or $x^2 - 3x - 4 = 0$. The first equation yields $x = \frac{3}{2}$, and using the quadratic formula on the second gives $x = 4$ and $x = -1$.