Math 1140F - Fall 2014
Quiz 2

Name: KEY

1. (1 point) Solve $|x+4|+3<5$. Write your answer in interval notation.

$|x+4|<2$ $\quad -6<x<-2$

$-2<x+4<2$

$\boxed{(-6,-2)}$

2. (2.5 points) Find the center and radius of the circle given by the equation $2x^2+2y^2-12x+8y-24=0$.

$2x^2+2y^2-12x+8y-24=0$

$x^2+y^2-6x+4y=12$

$(x^2-6x+9)+(y^2+4y+4)=12+9+4$

$(x-3)^2+(y+2)^2=25$

center: $(3,-2)$
radius: 5

3. Let $P_1=(-2,3)$ and $P_2=(2,1)$.

(a) (0.5 points) Find the distance between P_1 and P_2.

$d=\sqrt{(2+2)^2+(1-3)^2}$

$=\sqrt{16+4}$

$\boxed{d=2\sqrt{5}}$

(b) (0.5 points) Find the midpoint between P_1 and P_2.

$M=\left(\frac{x_1+x_2}{2},\frac{y_1+y_2}{2}\right)=\boxed{(0,2)}$

(c) (0.5 points) Find the equation of the line containing P_1 and P_2.

$m=\frac{1-3}{2+2}=\frac{-2}{4}=-\frac{1}{2}$

$y-1=-\frac{1}{2}(x-2)$

$y-1=-\frac{1}{2}x+1$

$\boxed{y=-\frac{1}{2}x+2}$