NAME: Solution

MAC 1147 Section 3077
Quiz Two

Please show all of your work in a NEAT and ORGANIZED fashion.

1. (3 points) Find all solutions (if any) to the following equation:

$$(x+2)(x-2)\left(\frac{x}{x+2}+\frac{1}{x-2}\right)=\left(\frac{x^2}{x^2-4}\right)(x+2)(x-2), \quad x\neq -2, 2$$

$$x(x-2)+x+2=x^2$$
$$x^2-2x+x+2=x^2$$
$$-x+2=0$$
$$x=2$$

But $x=2$ is an extraneous solution. So the equation has no solutions.

2. (3 points) Solve the following quadratic equation *by completing the square*:

$$2x^2+12x-16=0$$
$$x^2+6x-8=0$$
$$x^2+6x+3^2=8+3^2$$
$$x^2+6x+9=17$$
$$(x+3)^2=17$$
$$x+3=\pm\sqrt{17}$$
$$x=-3\pm\sqrt{17}$$

3. (3 points) Solve the following inequality, and graph the solution set:

$$\left|\frac{2}{5}x-1\right|\leq 3$$
$$-3\leq\frac{2}{5}x-1\leq 3$$
$$-2\leq\frac{2}{5}x\leq 4$$
$$\frac{5}{2}(-2)\leq x\leq\frac{5}{2}(4)$$
$$-5\leq x\leq 10$$