MS 2001: Exercises

September 20, 2010

1 Inequalities

1. *Sketch a rough graph of:*
   - $(x-2)^2$
   - $x^3 - 2x - 3$
   - $-2x^2 + x - 5$
2. *Find the solution set of the inequality*
$$\frac{x}{x+2} \leq \frac{3}{x-2}$$
3. *Find the solution set of the inequality*
$$|x+4| > |3x-8|$$
and mark this set on a diagram.
4. *Find a positive number $N > 0$ such that*
$$\left| x^3 - 3x\cos x + \frac{4}{x} \right| \leq N$$
for all $1 \leq x \leq 3$.