MthT 430 Projects Chapter 1 Inequalities

This assignment should be typed.

The Triangle Inequality and Applications

For the time being, assume (P1) – (P12), and

$$|a| = \begin{cases} a, & a \geq 0 \\ -a, & a \leq 0. \end{cases}$$

The *Triangle Inequality* says that

$$|a + b| \leq |a| + |b|.$$

On September 6, 2005, turn in well written solutions of Problems 1–3.

1. Show that
$$|-b| = |b|.$$

2. Show that
$$|a - b| \leq |a| + |b|.$$

3. Give examples such that

- $|a - b| = |a| + |b|.$

- $|a - b| < |a| + |b|.$