

Solving Absolute Value Inequalities with the TI-92

$$\text{Solve: } |2x + 5| > 7$$

Algebraically:

$$\begin{array}{ll} 2x + 5 > 7 & \text{or} \quad 2x + 5 < -7 \\ 2x > 2 & 2x < -12 \\ x > 1 & x < -6 \end{array}$$

x is all the values less than -6 or greater than 1.

$$(-\infty, -6) \cup (1, \infty)$$

Graphically (abs is the command for absolute value)

$$\text{Solve } |2x + 5| > 7$$

Diamond Y=

(Clear functions)

$$\begin{array}{l} Y1 = \text{abs}(2x + 5) \\ Y2 = 7 \end{array}$$

Diamond Graph

The solution is the set of values for x for which Y1 is greater than (above) Y2.

Find the points of intersection using **F5 Math** then **5: Intersection** :

$$(-6, 7) \text{ and } (1, 7)$$

Y1 is **above** Y2 for all the x values to the **left** of -6 and to the **right** of 1.

The solution is $(-\infty, -6) \cup (1, \infty)$.