

# 1.8 Absolute Value

Distance from zero

if  $|x| = 3$        $x = 3$  or  $x = -3$

Webwork  $\rightarrow$        $-3, 3$

**Ex 1**      (a)  $|5 - 3x| = 12$

$$\begin{array}{r} 5 - 3x = 12 \\ -5 \quad -5 \\ \hline -3x = 7 \\ \hline -3 \quad -3 \\ \hline x = -\frac{7}{3} \end{array}$$

$$\begin{array}{r} 5 - 3x = -12 \\ -5 \quad -5 \\ \hline -3x = -17 \\ \hline -3 \quad -3 \\ \hline x = \frac{17}{3} \end{array}$$

$$x = -\frac{7}{3}$$

$$x = \frac{17}{3}$$

$-\frac{7}{3}, \frac{17}{3}$

$\left\{ -\frac{7}{3}, \frac{17}{3} \right\}$

$x = -\frac{7}{3}$  or  $x = \frac{17}{3}$

Webwork

(c)

$$|x-1| = -1$$

No Solution

NONE

(b)  $2|x-1| - 3 = 7$

$$\begin{array}{r} 2|x-1| - 3 = 7 \\ +3 \quad +3 \\ \hline 2|x-1| = 10 \\ \hline \frac{2}{2}|x-1| = \frac{10}{2} \\ |x-1| = 5 \end{array}$$

(1) I isolate  $|$

$|x-1| = 5$       (2)

$$x-1 = 5$$

$$+1 \quad +1$$

$x = 6$

$$x-1 = -5$$

$$+1 \quad +1$$

$x = -4$