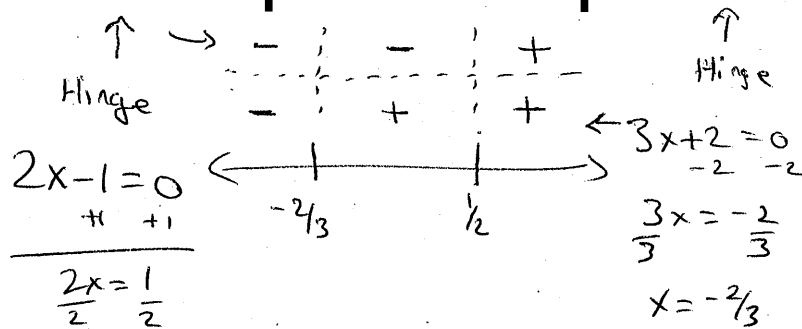


Find all solutions for:

$$|2x - 1| + x = |3x + 2| - 5$$



$$x = 1/2$$

when $x < -2/3$

$$-(2x - 1) + x = -(3x + 2) - 5$$

$$-2x + 1 + x = -3x - 2 - 5$$

$$\begin{array}{r} -x + 1 = -3x - 7 \\ +3x \quad -1 \quad +3x \quad -1 \end{array}$$

$$\frac{2x}{2} = \frac{-8}{2}$$

$$x = -4$$

check

$$\begin{array}{l} |2(-4) - 1| + (-4) \stackrel{?}{=} |3(-4) + 2| - 5 \\ |-9| + -4 \stackrel{?}{=} |-10| - 5 \\ 9 + -4 \stackrel{?}{=} 10 - 5 \\ 5 \stackrel{?}{=} 5 \end{array}$$

when $-2/3 < x < 1/2$

$$-(2x - 1) + x = (3x + 2) - 5$$

$$-2x + 1 + x = 3x + 2 - 5$$

$$\begin{array}{r} -x + 1 = 3x - 3 \\ +x \quad +3 \quad +x \quad +3 \end{array}$$

$$\frac{4}{4} = \frac{4x}{4}$$

$$1 = x$$

check

when $x > 1/2$

$$(2x - 1) + x = (3x + 2) - 5$$

$$2x - 1 + x = 3x + 2 - 5$$

$$\begin{array}{r} 3x - 1 = 3x - 3 \\ +3x \quad +1 \quad -3x \quad +1 \end{array}$$

$$0 = -2$$

$$\begin{array}{l} |2(1) - 1| + (1) \stackrel{?}{=} |3(1) + 2| - 5 \\ |1| + 1 \stackrel{?}{=} |5| - 5 \\ 2 \stackrel{?}{=} 0 \end{array}$$