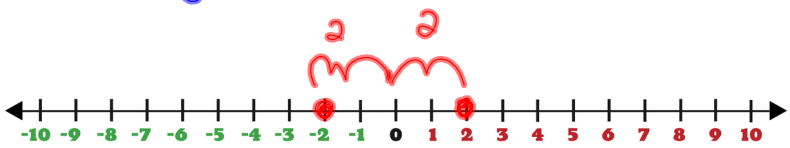
Absolute Value → Distance from zero

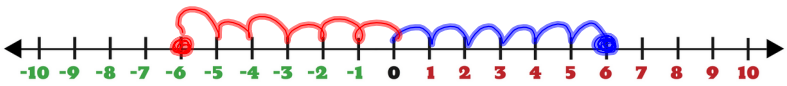
$|x| = 2$ → $x = 2$ or $x = -2$

$|x|$ absolute value symbol



Absolute Value

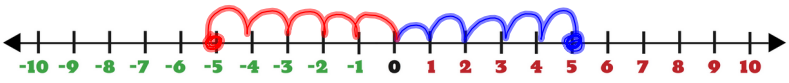
$|x| = 6$ → $x = 6$ or $x = -6$



$|x| = -2$ no answer

Absolute Value

$|x| = 5$



$x = -5$ or $x = 5$

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

$|x| = -2$ no answer

$|x| = 5$

$x = 5$ or $x = -5$

$|x| = -3$ no answer

-12 or 12

$|x| = 12$

$|12| = 12$

$12 = 12$ ✓

$x = 12$

$|-12| = 12$

$12 = 12$

$x = -12$

$|11 - 4x| = 7$

$|11 - 4(1)| = 7$

$|11 - 4| = 7$

$|7| = 7$

$7 = 7$ ✓

$x = 1$

$x = 9/2$

$|11 - 4(\frac{9}{2})| = 7$

$|11 - 18| = 7$

$|-7| = 7$

$7 = 7$ ✓

$$|2x-9| = 11$$

$x = -1$

$|2(-1)-9| = 11$

$|-2-9| = 11$

$|-11| = 11$

$11 = 11$ ✓

$x = 10$

$|2(10)-9| = 11$

$|20-9| = 11$

$|11| = 11$

$11 = 11$ ✓

$$|8-2x| = 2$$

$x = 3$ or $x = 5$

$|8-2(3)| = 2$

$|8-6| = 2$

$|2| = 2$

$2 = 2$ ✓

$|8-2(5)| = 2$

$|8-10| = 2$

$|-2| = 2$

$2 = 2$ ✓

$$\left|\frac{1}{2}x+4\right|=6$$

$\frac{1}{2}x+4=6$ or $\frac{1}{2}x+4=-6$

$-4\quad -4$ $\qquad$ $-4\quad -4$

$\frac{\frac{1}{2}x}{1/2}=\frac{2}{1/2}$ $\qquad$ $\frac{\frac{1}{2}x}{1/2}=\frac{-10}{1/2}$

$x=4$ or $x=-20$

$$\left|\frac{2}{3}x+2\right|=10$$

$\frac{2}{3}x+2=10$ $\qquad$ $\frac{2}{3}x+2=-10$

$-2\quad -2$ $\qquad$ $-2\quad -2$

$\frac{\frac{2}{3}x}{2/3}=\frac{8}{2/3}$ $\qquad$ $\frac{\frac{2}{3}x}{2/3}=\frac{-12}{2/3}$

$x=12$ $\qquad$ $x=-18$

$$|5-2x|=13$$

$5-2x=13$ or $5-2x=-13$

$-5 \quad -5$ $\quad$ $-5 \quad -5$

$\frac{-2x}{-2}=\frac{8}{-2}$ $\quad$ $\frac{-2x}{-2}=\frac{-18}{-2}$

$x=-4$ or $x=9$

$|5-2(-4)|=13$ $\quad$ $|5-2(9)|=13$

$|5+8|=13$ $\quad$ $|5-18|=13$

$|13|=13$ $\quad$ $|-13|=13$

$13=13\checkmark$ $\quad$ $13=13\checkmark$

$$\left|\frac{2}{3}x-9\right|=18$$

$\frac{2}{3}x-9=-18$ $\quad$ $\frac{2}{3}x-9=18$

$+9 \quad +9$ $\quad$ $+9 \quad +9$

$\frac{\frac{2}{3}x}{2/3}=\frac{-9}{2/3}$ $\quad$ $\frac{\frac{2}{3}x}{2/3}=\frac{27}{2/3}$

$x=-27/2$ $\quad$ $x=40\frac{1}{2}$

$-13\frac{1}{2}$

$$|2x-5| = 9$$

$|-9|$ $|9|$

9 9

$2x-5=-9$ or $2x-5=9$

$+5\ +5$ $+5\ +5$

$\frac{2x}{2} = \frac{-4}{2}$ $\frac{2x}{2} = \frac{14}{2}$

$x = -2$ or $x = 7$

$$|x-8| = 11$$

$x-8=11$ or $x-8=-11$

$+8\ +8$ $+8\ +8$

$x = 19$ or $x = -3$

$|2x+1| = 5$

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

$-1 \quad -1 \qquad\qquad -1 \quad -1$

$\frac{2x}{2} = \frac{4}{2} \qquad\qquad \frac{2x}{2} = \frac{-6}{2}$

$x = 2$ or $x = -3$

$\left|\frac{2}{3}x+2\right| = 10$

$\frac{2}{3}x+2 = 10$ or $\frac{2}{3}x+2 = -10$

$-2 \quad -2 \qquad\qquad -2 \quad -2$

$\frac{2}{3}x = 8 \qquad\qquad \frac{3}{2}\left(\frac{2}{3}x\right) = (-12)\frac{3}{2}$

$\frac{2}{3} \quad \frac{2}{3}$

$x = 12$ or $x = -18$

or $3\left(\frac{2}{3}x = -12\right)$

$\frac{2x}{2} = \frac{-36}{2}$

$x = -18$

Homework

pg 53

#32-40