

February 3, 2016

Absolute Value

$|stuff| = k$

① Case 1 \rightarrow if $k < 0$
 * No Solution!

$| -5 | = -k$
 $5 \neq -k$

② Case 2: $k = 0$

$| -stuff | = 0$
 solve
 $stuff = 0$

$| 2x - 3 | = 0$
 $2x - 3 = 0$
 $2x = 3$
 $x = \frac{3}{2}$

ok

$| 2(\frac{3}{2}) - 3 | = 0$
 $| 3 - 3 | = 0$
 $| 0 - 3 | = 0$
 $| 0 | = 0$
 $0 = 0 \checkmark$

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③ Case 3: $k > 0$

$|stuff| = k$

Solve

① $stuff = k$ ② $stuff = -k$

$| 2x - 3 | = 8$

$2x - 3 = 8$ $2x - 3 = -8$
 $2x = 11$ $2x = -5$
 $x = \frac{11}{2}$ $x = -\frac{5}{2}$

$| 2(\frac{11}{2}) - 3 | = 8$ $| 2(-\frac{5}{2}) - 3 | = 8$
 $| \frac{22}{2} - 3 | = 8$ $| -\frac{10}{2} - 3 | = 8$
 $| \frac{22-6}{2} | = 8$ $| -\frac{10-6}{2} | = 8$
 $| \frac{16}{2} | = 8$ $| \frac{-4}{2} | = 8$
 $| 8 | = 8$ $| -2 | = 8$
 $8 = 8 \checkmark$ $8 = 8 \checkmark$

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$|stuff| - |junk| = 0$

$| 9 - 4x | - | 2x - 3 | = 0$

* Isolate an A & B

$| 9 - 4x | = | 2x - 3 |$

①

$9 - 4x = 2x - 3$
 $12 = 6x$
 $2 = x$

$| 9 - 4(2) | - | 2(2) - 3 | = 0$
 $| 9 - 8 | - | 4 - 3 | = 0$
 $| 1 | - | 1 | = 0$
 $1 - 1 = 0$
 $0 = 0 \checkmark$

②

$9 - 4x = -(2x - 3)$
 $9 - 4x = -2x + 3$
 $6 = 2x$
 $3 = x$

$| 9 - 4(3) | - | 2(3) - 3 | = 0$
 $| 9 - 12 | - | 6 - 3 | = 0$
 $| -3 | - | 3 | = 0$
 $-3 - 3 = 0 \checkmark$

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#12) $3 | -8x | + 8 = 80$

$3 | -8x | = 72$

$| -8x | = 24$

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#14) $-5 | 3 + 4k | = -115$

$| 3 + 4k | = 23$

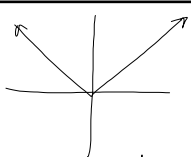
$3 + 4k = 23$
 $4k = 20$
 $k = 5$

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$|x| = k$

$x = +k$ $x = -k$

$|5| = 5$
 $| -5 | = 5$



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$$-8x + 6 = 0$$

$$\frac{-8x}{-8} = \frac{-6}{-8}$$

$$x = \frac{3}{4}$$

$$\begin{matrix} 3 + |8x-6| = 3 \\ \rightarrow \end{matrix}$$

$$|8x-6| = 0$$

$$0 = |8x-6|$$

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