Absolute Value Equations

SEQN5

Steps:

1) Isolate the absolute value expressions on one side of the equation (using inverse operations)

2) Rewrite the absolute value expression with the two cases as solutions to the expression (one pos and one neg) → 2 equations without | |

3) You will have two solutions for the variable.

Special Cases:

1) If the absolute value expression is equal to zero ➜ you will only have ONE solution (zero does not have an opposite value)

2) If the absolute value expression is equal to a negative # ➜ you will have NO solution (abs value can not be negative)

Ex: $4|x+2| - 6 = 18$

$+6 \quad +6$

$\frac{4|x+2|}{4} = \frac{24}{4}$

$|x+2| = 6$

$x+2 = 6$ $\quad$ $x+2 = -6$

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

$x = 4$ $\quad$ $x = -8$

Ex: $|x+3| + 14 = 14$

$-14 \quad -14$

$|x+3| = 0$

$x+3 = 0$

$x = -3$

Ex: $5 = |x+2| + 10$

$-10 \quad -10$

$-5 = |x+2|$

no solution

absolute deviation - a number, x, from a given value is the absolute-value of the difference of x and the given value

absolute deviation = |x - given value|

absolute error = is the absolute deviation of a measured value from an accepted value