

EXAMPLE 7.1b: Solve the inequality $8x - 2 > 2x - 3$.

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SOLUTION:

$8x - 2 > 2x - 3$ Add 2 to both sides of this inequality to get the following inequality:

$8x > 2x - 1$ Add $-2x$ to both sides of this inequality to get the following inequality:

$6x > -1$ Divide both sides of this inequality by 6 to get the following inequality:

$$x > -\frac{1}{6}$$

Thus, the solution set of the given inequality consists of all the numbers that are greater than $-\frac{1}{6}$.

EXAMPLE 7.1c: Solve the inequality $-3x + 12 > 45$.

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SOLUTION:

$-3x + 12 > 45$ Add -12 to both sides of this inequality to get the following inequality:

$-3x > 33$ Divide both sides of the inequality by -3 to get the following inequality:

$$x < -11$$

If you feel you understand the process of solving an inequality, there is no need to explain each step. Nor is there a need to say explicitly the meaning of the last expression. The answer $x < -11$ is understood to mean “the solution set of the given inequality consists of all the numbers that are smaller than -11 .”

EXAMPLE 7.1d: Solve the inequality $4(x - 12.5) \leq 8x - \frac{1}{8}$.

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SOLUTION: You should justify each step in the following process on your own:

$$4(x - 12.5) \leq 8x - \frac{1}{8}$$