



Printable Worksheets from [sofatutor.com](https://www.sofatutor.com)

Solving Multi-Step Inequalities

- 1 Describe the steps required to solve the inequality $-5x + (2 \times 5) \leq -20$
- 2 How to set up an inequality.
- 3 Determine the number of workout sessions Rocky needs to reach his goal of losing 20 pounds.
- 4 Decide how many workout sessions Bruno needs to complete.
- 5 Examine the effect of different diets on the Rocky's weight loss.
- 6 Solve the given inequalities.
- + with lots of tips, answer keys, and detailed answer explanations for all of the problems.



The complete package, including all problems, hints, answers, and detailed answer explanations is available for all [sofatutor.com](https://www.sofatutor.com) subscribers.



Describe the steps required to solve the inequality

$$-5x + (2 \times 5) \leq -20.$$

Fill in the blanks.

- flip Solve for x Combine like terms Simplify

1 $-5x + 20 \leq -20$

.....¹ by multiplying.

2 $-5x \leq -40$

.....² by subtracting 20 on both sides of the inequality.

3 $x \geq 8$

.....³ by using opposite operations. Because you divide by a negative number,⁴ the sign.



Hints for solving these problems

1
of 6

Describe the steps required to solve the inequality

$$-5x + (2 \times 5) \leq -20.$$

Hint #1

Use opposite operations:

- Multiplication ($\times \longleftrightarrow \div$)
 - Division ($\div \longleftrightarrow \times$)
 - Addition ($+$ \longleftrightarrow $-$)
 - Subtraction ($- \longleftrightarrow +$)
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Hint #2

Don't forget: when multiplying by or dividing by a negative number across an inequality, you have to remember to flip the inequality sign.



Answers and detailed answer explanations for these problems

1
of 6

Describe the steps required to solve the inequality

$$-5x + (2 \times 5) \leq -20.$$

Answer key: 1: Simplify // 2: Combine like terms // 3: Solve for x // 4: flip

$$-5x + (2 \times 10) \leq -20$$

$$-5x + 20 \leq -20 \quad | \text{Simplify by Multiplying}$$

$$\color{green}{-20} \quad \color{green}{-20} \quad | \text{Combine Like Terms using Opposite Operations}$$

$$-5x \leq -40$$

$$\color{green}{\div -5} \quad \color{green}{\div -5} \quad | \text{Opposite Operations}$$

$$x \geq 8 \quad | \text{Flip sign } \leq \rightarrow \geq \text{ because we divided by a negative number}$$