

Math Sheet

Name _____ Score _____ / 10 Teacher _____ Date _____

Multi-Step Inequalities

Solve each inequality. Show your work and graph the solution.

1. $-1y + -2y > -87$



6. $-126 < 8z + -2z$



2. $7n + (-4) + 4 < -70$



7. $-355 > -8y + (-7) + 4$



3. $2(x + (-1)) > 16$



8. $-175 < 5(x + 9)$



4. $x + -5(x + 11) \leq 105$



9. $28 \geq p + 3(p + (-4))$



5. $7m + 5 \leq 6m + 39$



10. $-6m + (-12) \geq -5m + 6$



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Multi-Step Inequalities

Answer key

Solve each inequality. Show your work and graph the solution.

1. $-1 y + -2 y > -87$

$$-3 y > -87$$

Simplify each side.

$$y < 29$$

Divide by a negative coefficient and reverse the inequality direction.



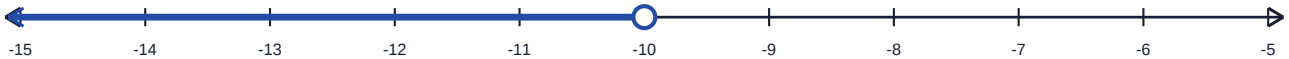
2. $7n + (-4) + 4 < -70$

$$7n < -70$$

Simplify each side.

$$n < -10$$

Divide by a positive coefficient; the direction stays the same.



3. $2(x + (-1)) > 16$

$$2x - 2 > 16$$

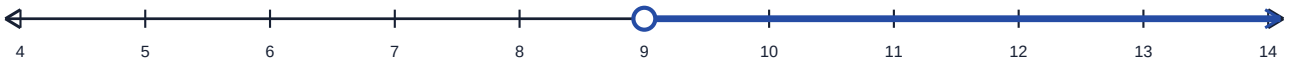
Simplify each side.

$$2x > 18$$

Move constants to the other side.

$$x > 9$$

Divide by a positive coefficient; the direction stays the same.



4. $x + -5 (x + 11) \leq 105$

$$-4 x - 55 \leq 105$$

Simplify each side.

$$-4 x \leq 160$$

Move constants to the other side.

$$x \geq -40$$

Divide by a negative coefficient and reverse the inequality direction.



5. $7m + 5 \leq 6m + 39$

$$m + 5 \leq 39$$

Move variable terms to one side.

$$m \leq 34$$

Move constants to the other side.



Multi-Step Inequalities

Answer key

Solve each inequality. Show your work and graph the solution.

6. $-126 < 8z + -2$

$$-126 < 6z$$

Simplify each side.

$$-6z - 126 < 0$$

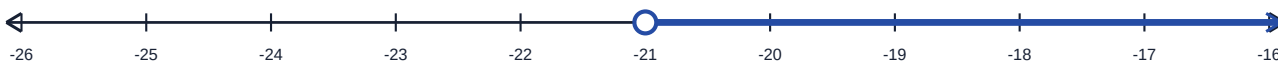
Move variable terms to one side.

$$-6z < 126$$

Move constants to the other side.

$$z > -21$$

Divide by a negative coefficient and reverse the inequality direction.



7. $-355 > -8y + (-7) + 4$

$$-355 > -8y - 3$$

Simplify each side.

$$8y - 355 > -3$$

Move variable terms to one side.

$$8y > 352$$

Move constants to the other side.

$$y > 44$$

Divide by a positive coefficient; the direction stays the same.



8. $-175 < 5(x + 9)$

$$-175 < 5x + 45$$

Simplify each side.

$$-5x - 175 < 45$$

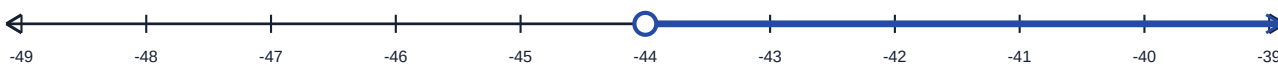
Move variable terms to one side.

$$-5x < 220$$

Move constants to the other side.

$$x > -44$$

Divide by a negative coefficient and reverse the inequality direction.



9. $28 \geq p + 3(p + (-4))$

$$28 \geq 4p - 12$$

Simplify each side.

$$-4p + 28 \geq -12$$

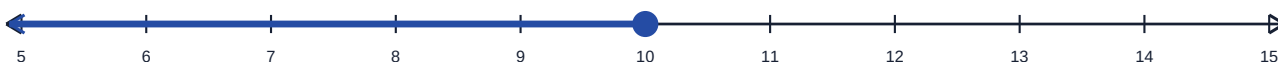
Move variable terms to one side.

$$-4p \geq -40$$

Move constants to the other side.

$$p \leq 10$$

Divide by a negative coefficient and reverse the inequality direction.



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Answer key

Solve each inequality. Show your work and graph the solution.

10. $-6m + (-12) \geq -5m + 6$

$$-6m - 12 \geq -5m + 6$$

Simplify each side.

$$-6m - 12 \geq 6$$

Move variable terms to one side.

$$-6m \geq 18$$

Move constants to the other side.

$$m \leq -3$$

Divide by a negative coefficient and reverse the inequality direction.

