

The slide features a light beige background with a blue grid pattern in the top-left and bottom-right corners. A dark blue rectangular area is positioned on the left side, containing the text. A vertical red bar is located on the left edge of this dark blue area.

Algebra 1

Chapter 3
Section 3-4

One-Step Inequality Review

$$4 + x > 11$$

$$-5x \leq 85$$

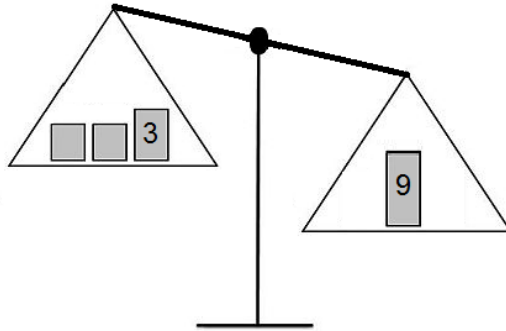
$$t/7 < -1$$

$$h - 3 \leq -2$$

$$x > 7$$
$$t < -7$$

$$x \leq -17$$
$$h \leq 1$$

Solving Inequalities Using the Scale Method



$$2x + 3 < 9$$

$$2x < 6$$

$$x < 3$$

Multi-Step Inequalities

$$7 - 3y \geq 3$$

$$17 - x < 25$$

$$3h + 2 > 4$$

$$2k - 3 \geq 57$$

$$\begin{aligned} -3y &\geq -4 \\ y &\leq 4/3 \end{aligned}$$

$$\begin{aligned} -x &< 8 \\ x &> -8 \end{aligned}$$

$$\begin{aligned} 3h &> 2 \\ h &> 2/3 \end{aligned}$$

$$\begin{aligned} 2k &\geq 60 \\ k &\geq 30 \end{aligned}$$

More Multi-Step Inequalities

$$v/7 - 12 \geq -9$$

$$10 - x/6 > 5$$

$$13z + 2 \leq 2$$

$$1/2 - 2x \geq 0$$

$$v/7 \geq 3$$
$$v \geq 21$$

$$-x/6 > -5$$
$$x < 30$$

$$13z \leq 0$$
$$z \leq 0$$

$$-2x \geq -1/2$$
$$x \leq 1/4$$

Inequalities With More Than One Variable Term

$$7x > 2x + 5$$

$$2x - 3 < 4 - 5x$$

$$x - 2 - \frac{2x}{3} \leq 1$$

$$5x - 2 > x$$

$$5x > 5$$
$$x > 1$$

$$7x < 7$$
$$x < 1$$

$$\frac{3x}{3} - \frac{2x}{3} \leq 3$$
$$\frac{x}{3} \leq 3$$
$$x \leq 9$$

$$4x - 2 > 0$$
$$4x > 2$$
$$x > \frac{2}{4}$$
$$x > \frac{1}{2}$$

Inequalities With More Than One Variable Term

$$7x - 3x > 2x$$

$$2x/5$$

$$2 - 3x < 4x - 5$$

$$-x - 2/5 \leq 8/5$$

$$x/2 > 11 +$$

$$\begin{aligned} 4x &> 2x \\ 2x &> 0 \\ x &> 0 \end{aligned}$$

$$\begin{aligned} -7x &< -7 \\ x &> 1 \end{aligned}$$

$$\begin{aligned} -x &\leq 10/5 \\ -x &\leq 2 \\ x &\geq -2 \end{aligned}$$

$$\begin{aligned} x/2 - 2x/5 &> 11 \\ 5x/10 - 4x/10 &> 11 \\ 1x/10 &> 11 \\ x &> 110 \end{aligned}$$

Distributive Property Review

$$3(x - 5) = 9$$

$$3(x - 4) - 2x = x$$

$$2x - (1 - 7x) = -1$$

$$-2(x - 2) = 2(2 - x)$$

$$3x - 15 = 9$$

$$3x = 24$$

$$x = 8$$

$$3x - 12 - 2x = x$$

$$x - 12 = x$$

$$-12 = 0 \text{ (NO SOLUTION)}$$

$$2x - 1 + 7x = -1$$

$$9x - 1 = -1$$

$$9x = 0$$

$$x = 0$$

$$-2x + 4 = 4 - 2x$$

$$0 = 0 \text{ (IDENTITY)}$$

More Inequalities With More Than One Variable Term

$$8(1 - x) \geq 16$$

$$x - 5 \leq x - 5x$$

$$-3(x + 2) \geq -3x$$

$$5x > 5(x - 5)$$

$$8 - 8x \geq 16$$

$$-8x \geq 8$$

(ALL REAL NUMBERS)

$$x \leq -1$$

$$x - 5 \leq -4x$$

$$5x - 5 \leq 0$$

$$5x \leq 5$$

$$x \leq 1$$

$$-3x - 6 \geq -3x$$

$$-6 \geq 0 \text{ (NO SOLUTION)}$$

$$5x > 5x - 25$$

$$0 > -25$$

Inequalities With Fractions

$$\frac{5}{7}x - 3 > 2$$

$$\frac{5}{6}x > \frac{2}{3}x + 7$$

$$\frac{2x}{7} + 1 < 0$$

$$1\frac{1}{4} - x \geq 3$$

$$\frac{5}{7}x > 5$$
$$x > 7$$

$$\frac{5}{6}x - \frac{2}{3}x > 7$$
$$\frac{5}{6}x - \frac{4}{6}x > 7$$
$$\frac{1}{6}x > 7$$
$$x > 42$$

$$\frac{2x}{7} < -1$$
$$2x < -7$$
$$x < -\frac{7}{2}$$

$$-x \geq 3 - 1\frac{1}{4}$$
$$-x \geq \frac{12}{4} - \frac{11}{4}$$
$$-x \geq \frac{1}{4}$$
$$x \leq -\frac{1}{4}$$

Application Problem

A delivery person uses a service elevator to bring boxes of books up to an office. The delivery person weighs 175 pounds and each box weighs 45 pounds. The maximum capacity of the elevator is 700 pounds. What is the most boxes the delivery person can take into the elevator at one time?

$$45x + 175 \leq 700$$

$$45x \leq 525$$

$$x \leq 15.\overline{5}$$

15 boxes