

Solving Inequalities Practice

Name: _____

Date: _____

Question 1

Solve the inequality for x

I. $x + 9 > 6$

II. $x + 7 \leq -10$

III. $2x \leq x - 9$

IV. $x - 6 < 11$

V. $5 \geq x + 8$

Solving Inequalities Practice

VI. $x - \frac{1}{8} > \frac{1}{2}$

VII. $-9x + 17 > 17 - 8x$

VIII. $2x \leq x - 9$

IX. $6 - x > 11$

X. $4x < 28$

Solving Inequalities Practice

XI. $9 \leq -2.5x$

XII. $\frac{1}{8}x > \frac{1}{2}$

XIII. $\frac{2}{3} \left(\frac{7}{8} - 4x \right) - \frac{5}{8} < \frac{3}{8}$

XIV. $1.7x + 8 - 1.62x < 0.4x - 0.32 + 8$

Solving Inequalities Practice

Name: _____ **Key** _____

Date: _____

Question 1

Solve the inequality for x

I. $x + 9 > 6$

$$x + \cancel{9 - 9} > 6 - 9 \rightarrow x > -3$$

cancel

II. $x + 7 \leq -10$

$$x + \cancel{7 - 7} \leq -10 - 7 \rightarrow x \leq -17$$

cancel

III. $2x \leq x - 9$

$$2x - x \leq \cancel{x - x} - 9 \rightarrow x \leq -9 \rightarrow x \leq -9$$

cancel

IV. $x - 6 < 11$

$$x - \cancel{6 + 6} < 11 + 6 \rightarrow x < 17$$

cancel

V. $5 \geq x + 8$

$$5 - 8 \geq x + \cancel{8 - 8} \rightarrow -3 \geq x$$

cancel

Solving Inequalities Practice

VI.

$$x - \frac{1}{8} > \frac{1}{2}$$

$$x - \frac{1}{8} + \frac{1}{8} > \frac{1}{2} \cdot \frac{4}{4} + \frac{1}{8} \rightarrow x > \frac{4}{8} + \frac{1}{8} \rightarrow x > \frac{5}{8}$$

cancel

VII.

$$-9x + 17 > 17 - 8x$$

$$-9x + 8x + 17 > 17 - 8x + 8x \rightarrow -1x + 17 > 17 \rightarrow -1x + 17 > 17 \rightarrow -1x + 17 - 17 > 17 - 17 \rightarrow -1x > 0 \rightarrow x < 0$$

cancel

cancel

flip
↓
cancel

VIII.

$$2x \leq x - 9$$

$$2x - x \leq x - x - 9 \rightarrow x \leq -9 \rightarrow x \leq -9$$

cancel

IX.

$$6 - x > 11$$

$$6 - 6 - x > 11 - 6 \rightarrow -x > 5 \rightarrow x < -5$$

cancel

flip
↓
cancel

X.

$$4x < 28$$

$$\frac{4x}{4} < \frac{28}{4} \rightarrow x < 7$$

cancel

Solving Inequalities Practice

XI. $9 \leq -2.5x$

flip
 $\downarrow$
 $\frac{9}{-2.5} \leq \frac{-2.5x}{-2.5} \rightarrow \frac{9}{-2.5} \geq x$
 cancel

XII. $\frac{1}{8}x > \frac{1}{2}$

$\frac{8}{1} \cdot \frac{1}{8}x > \frac{1}{2} \cdot \frac{8}{1} \rightarrow x > 4$
 cancel

XIII. $\frac{2}{3} \left(\frac{7}{8} - 4x \right) - \frac{5}{8} < \frac{3}{8}$

$\frac{2}{3} \left(\frac{7}{8} - 4x \right) - \frac{5}{8} < \frac{3}{8} \rightarrow \frac{7}{12} - \frac{8}{3}x - \frac{5}{8} < \frac{3}{8} \rightarrow \frac{7}{12} - \frac{8}{3}x - \frac{5}{8} + \frac{5}{8} < \frac{3}{8} + \frac{5}{8}$
 cancel

$\downarrow$
 $-\frac{8}{3}x < 1 \cdot \frac{12}{12} - \frac{7}{12} \leftarrow \frac{7}{12} - \frac{7}{12} - \frac{8}{3}x < 1 - \frac{7}{12} \leftarrow \frac{7}{12} - \frac{8}{3}x < 1$
 cancel

$\downarrow$
 $-\frac{8}{3}x < \frac{12}{12} - \frac{7}{12} \rightarrow -\frac{8}{3}x < \frac{5}{12} \rightarrow \frac{3}{-8} \cdot -\frac{8}{3}x < \frac{5}{12} \cdot \frac{3}{-8} \rightarrow x > -\frac{5}{32}$
 flip
 cancel

XIV. $1.7x + 8 - 1.62x < 0.4x - 0.32 + 8$

$1.7x + 8 + -1.62x < 0.4x + -0.32 + 8 \rightarrow 1.7x + -1.62x + 8 < 0.4x + 8 + -0.32 \rightarrow 0.08x + 8 < 0.4x + 7.68$
 $\downarrow$

$8 < 0.32x + 7.68 \leftarrow 8 < 0.32x + 7.68 \leftarrow 0.08x - 0.08x + 8 < 0.4x - 0.08x + 7.68$
 cancel

$\downarrow$
 $8 - 7.68 < 0.32x + 7.68 - 7.68 \rightarrow 0.32 < 0.32x \rightarrow 1 < x$
 cancel
 cancel