

ALGEBRA 1 / UNIT 3 / LESSON 3

PRACTICE PROBLEMS 3

Solve the following inequalities.

1. $-2 < 10 + n < 18$

2. $-3 < 12 + k < 22$

3. $2 < 10 + p < 16$

4. $3x < 15$ or $x/3 \geq 5$

5. $5x > 5$ or $x/3 < 3$

6. $2x + 7 \geq 9$ and $x/7 \leq -1$

7. $-8b + 6 \geq 34$ or $4b - 12 \geq 20$

8. $-10n + 8 \leq -42$ or $5n - 10 \leq -40$

9. $7z - 7 \geq 63$ and $-3 - 6z \geq +57$

10. $8p + 8 \geq -64$ and $-7 - 8p \geq -79$

11. Lisa is saving \$10 a week to purchase her new Air Pods Pro. She already has \$95. Her sister Tina is also saving \$15 a week for the same purpose. In how many weeks will Lisa have more money than Tina?

12. The Home Cleaning Company charges \$312 to power-wash the siding of a house plus \$10 for each window. Power Clean charges \$34 per window, and the price includes power-washing the siding. How many windows must a house have to make a total cost from The Home Cleaning Company more expensive than Power Clean? Let w be the number of windows.?

SOLUTIONS

1. $-2 < 10 + n < 18$

$$\begin{array}{r} -10 \quad -10 \quad -10 \\ \hline \end{array}$$

$$-12 < n < 8$$

2. $-3 < 12 + k < 22$

$$\begin{array}{r} -12 \quad -12 \quad -12 \\ \hline \end{array}$$

$$-15 < k < 10$$

3. $2 < 10 + p < 16$

$$\begin{array}{r} -10 \quad -10 \quad -10 \\ \hline \end{array}$$

$$-8 < p < 6$$

4. $3x < 15$ or $x/3 \geq 5$

$$x < 5 \quad \text{or} \quad x \geq 15$$

5. $5x > 5$ or $x/3 < 3$

$$x > 1 \quad \text{or} \quad x < 9$$

6. $2x + 7 \geq 9$ and $x/7 \leq -1$

$$2x \geq 2 \quad \text{and} \quad x \leq -7$$

$$x \geq 1 \quad \text{and} \quad x \leq -7$$

7. $-8b - 6 \geq 34$ or $4b - 12 \geq 20$

$$-8b \geq 40 \quad \text{or} \quad 4b \geq 32$$

$$b \leq -5 \quad \text{or} \quad b \geq 8$$

8. $-10n + 8 \leq -42$ or $5n - 10 \leq -40$

$$-10n \leq -50 \quad \text{or} \quad 5n \leq -30$$

$$n \geq 5 \quad \text{or} \quad n \leq -6$$

9. $7z + 7 \geq -63$ and $3 - 6z \geq -57$

$$\begin{array}{r} -7 \quad -7 \quad -3 \quad -3 \quad 7z \geq -70 \quad \text{and} \quad -6z \geq -60 \\ \hline \end{array}$$

$$z \geq -10 \text{ and } z \leq 10$$

$$10. \quad 8p + 8 \geq -64 \text{ and } -7 - 8p \geq -79$$

$$\quad -8 \geq -8 \quad +7 \quad +7$$

$$8p \geq -72 \text{ and } -8p \geq -72$$

$$p \geq -9 \text{ and } p \leq 9$$

11. Lisa is saving \$10 a week to purchase her new Air Pods Pro. She already has \$96. Her sister Tina is also saving \$15 a week for the same purpose. In how many weeks will Lisa have more money than Tina?

$$10x + 95 > 15x$$

$$95 > 5x$$

$$19 > x \text{ At anytime less than 13 weeks Lisa will have more money than Tina.}$$

12. The Home Cleaning Company charges \$312 to power-wash the siding of a house plus \$10 for each window. Power Clean charges \$34 per window, and the price includes power-washing the siding. How many windows must a house have to make a total cost from The Home Cleaning Company more expensive than Power Clean? Let w be the number of windows?

$$10x + 312 > 34x$$

$$312 > 24x$$

$$13 > x$$