

1.

$$6x - 9 < x + 4 \quad | -x$$

$$5x - 9 < 4 \quad | +9$$

$$5x < 13 \quad | :5$$

$$\underline{x < 2,6}$$

$$G = \mathbb{N} : \quad \mathbb{L} = \underline{\underline{\{1; 2\}}}$$

$$G = \mathbb{Z} : \quad \mathbb{L} = \underline{\underline{\{\dots; -2; -1; 0; 1; 2\}}}$$

$$G = \mathbb{Q} : \quad \mathbb{L} = \underline{\underline{\{x \mid x < 2,6\}}}$$

2.

$$3(x+5) > 10(x+1)$$

$$3x + 15 > 10x + 10 \quad | -3x$$

$$15 > 7x + 10 \quad | -10$$

$$5 > 7x \quad | :7$$

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

$$G = \mathbb{N} : \quad \mathbb{L} = \underline{\underline{\{\}}}$$

$$G = \mathbb{Z} : \quad \mathbb{L} = \underline{\underline{\{\dots; -2; -1; 0\}}}$$

$$G = \mathbb{Q} : \quad \mathbb{L} = \underline{\underline{\{x \mid x < \frac{5}{7}\}}}$$

3.

$$(5x+4)(x+1) > 2x(3x+5) - x^2$$

$$\cancel{5x^2} + 9x + 4 > \cancel{6x^2} + 10x - \cancel{x^2} \quad | -9x$$

$$\underline{4 > x}$$

$$G = \mathbb{N} : \quad \mathbb{L} = \underline{\underline{\{1; 2; 3\}}}$$

$$G = \mathbb{Z} : \quad \mathbb{L} = \underline{\underline{\{\dots; -2; -1; 0; 1; 2; 3\}}}$$

$$G = \mathbb{Q} : \quad \mathbb{L} = \underline{\underline{\{x \mid x < 4\}}}$$

4.

$$0,7x - 8 > 0,1x + 1 \quad | -0,1x$$

$$0,6x - 8 > 1 \quad | + 8$$

$$0,6x > 9 \quad | : 0,6$$

$$\underline{x > 15}$$

$$G = \mathbb{N} : \quad \mathbb{L} = \underline{\underline{\{16; 17; 18; \dots\}}}$$

$$G = \mathbb{Z} : \quad \mathbb{L} = \underline{\underline{\{16; 17; 18; \dots\}}}$$

$$G = \mathbb{Q} : \quad \mathbb{L} = \underline{\underline{\{x \mid x > 15\}}}$$

5.

$$\frac{2x}{3} + \frac{2}{5} < 4$$

$$\frac{10x}{15} + \frac{6}{15} < \frac{60}{15} \quad | \cdot 15$$

$$10x + 6 < 60 \quad | -6$$

$$10x < 54 \quad | : 10$$

$$\underline{x < 5,4}$$

$$G = \mathbb{N} : \quad \mathbb{L} = \underline{\underline{\{1; 2; 3; 4; 5\}}}$$

$$G = \mathbb{Z} : \quad \mathbb{L} = \underline{\underline{\{\dots; -2; -1; 0; 1; \dots; 5\}}}$$

$$G = \mathbb{Q} : \quad \mathbb{L} = \underline{\underline{\{x \mid x < 5,4\}}}$$

6.

$$(x+3)^2 > (x+1)(x+6)$$

$$\cancel{x^2} + 6x + 9 > \cancel{x^2} + 7x + 6 \quad | -6x$$

$$9 > x + 6 \quad | -6$$

$$\underline{3 > x}$$

$$G = \mathbb{N} : \quad \mathbb{L} = \underline{\underline{\{1; 2\}}}$$

$$G = \mathbb{Z} : \quad \mathbb{L} = \underline{\underline{\{\dots; -2; -1; 0; 1; 2\}}}$$

$$G = \mathbb{Q} : \quad \mathbb{L} = \underline{\underline{\{x < 3\}}}$$

$$\begin{aligned}
 7. \quad \frac{2}{3} \left( x + \frac{1}{2} \right) &< 5 \\
 \frac{2x}{3} + \frac{1}{3} &< 5 && | \cdot 3 \\
 2x + 1 &< 15 && | -1 \\
 2x &< 14 && | : 2 \\
 \underline{x < 7}
 \end{aligned}$$

$$G = \mathbb{N} : \quad \mathcal{L} = \underline{\underline{\{1; 2; \dots; 6\}}}$$

$$G = \mathbb{Z} : \quad \mathcal{L} = \underline{\underline{\{\dots; -2; -1; 0; 1; \dots; 6\}}}$$

$$G = \mathbb{Q} : \quad \mathcal{L} = \underline{\underline{\{x \mid x < 7\}}}$$

$$\begin{aligned}
 8. \quad (x+2)(x+3) &> (x+2)^2 \\
 \cancel{x^2} + 5x + 6 &> \cancel{x^2} + 4x + 4 && | -4x \\
 x + 6 &> 4 && | -6 \\
 \underline{x > -2}
 \end{aligned}$$

$$G = \mathbb{N} : \quad \mathcal{L} = \underline{\underline{\{1; 2; 3; \dots\}}}$$

$$G = \mathbb{Z} : \quad \mathcal{L} = \underline{\underline{\{-1; 0; 1; 2; \dots\}}}$$

$$G = \mathbb{Q} : \quad \mathcal{L} = \underline{\underline{\{x \mid x > -2\}}}$$

9.

$$13 - x - [4x - 3(x-2)] < 15$$

$$13 - x - [4x - 3x \oplus 6] < 15$$

$$13 - x - 4x + 3x - 6 < 15$$

$$7 - 2x < 15 \quad | +2x$$

$$7 < 2x + 15 \quad | -15$$

$$-8 < 2x \quad | :2$$

$$\underline{-4 < x}$$

$$G = \mathbb{N}: \quad \mathbb{L} = \underline{\underline{\{1; 2; 3; \dots\}}}$$

$$G = \mathbb{Z}: \quad \mathbb{L} = \underline{\underline{\{-3; -2; -1; 0; 1; \dots\}}}$$

$$G = \mathbb{Q}: \quad \mathbb{L} = \underline{\underline{\{x \mid x > -4\}}}$$

10.

$$(x+4)(x-4) > (x-7)(x-3)$$

$$\cancel{x^2} - 16 > \cancel{x^2} - 10x + 21 \quad | +10x$$

$$10x - 16 > 21 \quad | +16$$

$$10x > 37 \quad | :10$$

$$\underline{x > 3,7}$$

$$G = \mathbb{N}: \quad \mathbb{L} = \underline{\underline{\{4; 5; 6; \dots\}}}$$

$$G = \mathbb{Z}: \quad \mathbb{L} = \underline{\underline{\{4; 5; 6; \dots\}}}$$

$$G = \mathbb{Q}: \quad \mathbb{L} = \underline{\underline{\{x \mid x > 3,7\}}}$$