

1. Gib jeweils die Lösungsmenge an, wenn die angegebene Bedingung erfüllt werden soll und  $G = \mathbb{Z}$  ist.

Bsp.:  $x < 2 \rightarrow \underline{L = \{1, 0, -1, -2 \dots\}}$

a)  $x > -2 \rightarrow \underline{L = \{-1, 0, 1, 2 \dots\}}$

b)  $x < 7 \rightarrow \underline{L = \{6, 5, 4, 3 \dots\}}$

c)  $x < 1,8 \rightarrow \underline{L = \{1, 0, -1, -2 \dots\}}$

d)  $x > 0 \rightarrow \underline{L = \{1, 2, 3, 4 \dots\}}$

2. a)

$$\begin{array}{rcl} 6x - 11 < 7x + 9 & & / -6x \\ -11 < x + 9 & & / -9 \\ \underline{-20 < x} & & \end{array}$$

$$\underline{L = \{-19, -18, -17 \dots\}}$$

b)

$$\begin{array}{rcl} 10 + x - 2 > 10 - 2x & & \\ 8 + x > 10 - 2x & & / +2x \\ 8 + 3x > 10 & & / -8 \\ 3x > 2 & & / :3 \\ x > \frac{2}{3} & & \end{array}$$

$$\underline{L = \{1, 2, 3 \dots\}}$$

c)

$$\begin{array}{rcl} 0,5x + 1 > 0,6x - 5,7 & & / -0,5x \\ 1 > 0,1x - 5,7 & & / +5,7 \\ 6,7 > 0,1x & & / :0,1 \\ 67 > x & & \end{array}$$

$$\underline{L = \{66, 65, 64 \dots\}}$$

d)

$$\begin{array}{rcl} 18x^2 - 2x > 18x^2 + 9x & & / -18x^2 \\ -2x > 9x & & / +2x \\ 0 > 11x & & / :11 \\ 0 > x & & \end{array}$$

$$\underline{L = \{-1, -2, -3 \dots\}}$$

$$\begin{array}{rcl}
 3. \text{ a)} & 5x + 3 < 2x - 3 & / -2x \\
 & 3x + 3 < -3 & / -3 \\
 & 3x < -6 & / :3 \\
 & \underline{x < -2} &
 \end{array}$$

$$\underline{L = \{-3, -4, -5 \dots\}}$$

$$\begin{array}{rcl}
 \text{b)} & 6(x - 2) < 9x - 8 & \\
 & 6x - 12 < 9x - 8 & / -6x \\
 & -12 < 3x - 8 & / +8 \\
 & -4 < 3x & / :3 \\
 & -\frac{4}{3} < x &
 \end{array}$$

$$\underline{L = \{-1, 0, 1, 2 \dots\}}$$

$$\begin{array}{rcl}
 \text{c)} & 3x - 6 > -3(1 - x) & \\
 & 3x - 6 > -3 + 3x & / -3x \\
 & -6 > -3 & (\text{stimmt nie})
 \end{array}$$

$$\underline{L = \{\}} \quad (\text{leere Menge})$$

$$\begin{array}{rcl}
 \text{d)} & 5(3x - 2(2x + 5)) + x + 30 < 0 & \\
 & 5(3x - 4x - 10) + x + 30 < 0 & \\
 & 15x - 20x - 50 + x + 30 < 0 & \\
 & -4x - 20 < 0 & / +4x \\
 & -20 < 4x & / :4 \\
 & -5 < x &
 \end{array}$$

$$\underline{L = \{-4, -3, -2 \dots\}}$$