Klassenarbeitstrainer Gleichungen lösen

Aufgabe 1:
Löse die Gleichung und gib die Lösungsmenge an.

1) $8x + 2 = 5 + 5x$

2) $-1 \cdot (x + 2) + 4 = -1 - 2x$

3) $5x - 1 = 5 + 3x$

4) $-3x + 3 = -5 - 5x$

5) $3 \cdot (x + 6) = 11x + 3 - 8x$

6) $2 \cdot (x + 1) = 3x + 2 - 1x$

7) $5x + 4 = 10 + 2x$

8) $-7x - 4 = -13 - 4x$

9) $2x - 3 = -1 + 1x$

10) $-6x - 2 = -11 - 3x$

11) $-2 \cdot (x + 3) + 9 = -2 - 3x$

12) $-2x + 4 = 1 - 5x$

Erklärvideo

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Lösung

1)

$$8x + 2 = 5 + 5x \quad |-5x$$
$$3x + 2 = 5 \quad |-2$$
$$3x = 3 \quad |:3$$
$$x = 1$$

$$L = \{1\}$$

2)

$$-1 \cdot (x + 2) + 4 = -1 - 2x \quad |T$$
$$-1x + 2 = -1 - 2x \quad |+2x$$
$$x + 2 = -1 \quad |-2$$
$$x = -3$$

$$L = \{-3\}$$

3)

$$5x - 1 = 5 + 3x \quad |-3x$$
$$2x - 1 = 5 \quad |+1$$
$$2x = 6 \quad |:2$$
$$x = 3$$

$$L = \{3\}$$

4)

$$-3x + 3 = -5 - 5x \quad |+5x$$
$$2x + 3 = -5 \quad |-3$$
$$2x = -8 \quad |:2$$
$$x = -4$$

$$L = \{-4\}$$

5)

$$3 \cdot (x + 6) = 11x + 3 - 8x \quad |T$$
$$3 \cdot (x + 6) = 3x + 3 \quad |T$$
$$3x + 18 = 3x + 3 \quad |-3x$$
$$18 = 3$$

$$L = \{\ \}$$

6)

$$2 \cdot (x + 1) = 3x + 2 - 1x \quad |T$$
$$2x + 2 = 2x + 2 \quad |-2$$
$$2x = 2x \quad |:2$$
$$x = x$$

$$L = R$$

7)

$$5x + 4 = 10 + 2x \quad |-2x$$
$$3x + 4 = 10 \quad |-4$$
$$3x = 6 \quad |:3$$
$$x = 2$$

$$L = \{2\}$$

8)

$$-7x - 4 = -13 - 4x \quad |+4x$$
$$-3x - 4 = -13 \quad |+4$$
$$-3x = -9 \quad |:(-3)$$
$$x = 3$$

$$L = \{3\}$$

9)

$$2x - 3 = -1 + 1x \quad |-1x$$
$$1x - 3 = -1 \quad |+3$$
$$1x = 2 \quad |:1$$
$$x = 2$$

$$L = \{2\}$$

10)

$$-6x - 2 = -11 - 3x \quad |+3x$$
$$-3x - 2 = -11 \quad |+2$$
$$-3x = -9 \quad |:(-3)$$
$$x = 3$$

$$L = \{3\}$$

11)

$$-2 \cdot (x + 3) + 9 = -2 - 3x \quad |T$$
$$-2x + 3 = -2 - 3x \quad |+3x$$
$$x + 3 = -2 \quad |-3$$
$$x = -5$$

$$L = \{-5\}$$

12)

$$-2x + 4 = 1 - 5x \quad |+5x$$
$$3x + 4 = 1 \quad |-4$$
$$3x = -3 \quad |:3$$
$$x = -1$$

$$L = \{-1\}$$