

Mathematikprobe , MB2 LU9-10

Klasse 2L , 2. November 2016

1. Übertrage die Multiplikationsaufgaben in die Malkreuze und berechne :

a.) 29 x 42

c.) 73 x 93

e.) 29 x 92

b.) 18 x 81

d.) 99 x 102

f.) 999 x 101

x	30	-1	
40	1'200	-40	
2	60	-2	
a.)			<u>1'218</u> 1

x	70	3	
80	6'300	270	
3	210	9	
c.)			<u>6'789</u> 1

x	30	-1	
90	2'700	-90	
2	60	-2	
e.)			<u>2'668</u> 1

6

x	20	-2	
80	1'600	-160	
1	20	-2	
b.)			<u>1'458</u> 1

x	100	-1	
100	10'000	-100	
2	200	-2	
d.)			<u>10'098</u> 1

x	1'000	-1	
100	100'000	-100	
1	1'000	-1	
f.)			<u>100'899</u> 1

2. Berechne im Kopf und notiere x :

a.) $x - (2 - 4) = 6$ $x = 4$ 1/2

b.) $5 - (x - 1) = 3$ $x = 3$ 1/2

c.) $5 - (6 - x) = 7$ $x = 8$ 1/2

d.) $10 - (12 - 14) = x$ $x = 12$ 1/2

e.) $x + (1 - 2) = 3$ $x = 4$ 1/2

f.) $9 + (x - 7) = 5$ $x = 3$ 1/2

g.) $1 + (2 - x) = 3$ $x = 0$ 1/2

h.) $14 - (8 - 2) = x$ $x = 8$ 1/2

3. Schreibe die Gleichungen ab und löse sie schrittweise nach x auf :

a.) $8x - (6 - 4x) = 2$

b.) $7 - (6x + 5) = -4$

c.) $12x + (-10x - 8) = 6x$

d.) $20 + (10 - 20x) = -10x$

e.) $3x - (2 + x) = -6 + (5x - 4)$

f.) $\frac{x}{4} + (x - 2) = 1$

g.) $x - (4 - \frac{x}{3}) = -8$

h.) $\frac{5}{6} - (x - \frac{5}{9}) = 2x$

i.) $3(x - 4) - 2(x + 3) = 4x + 6$

j.) $(x - 3)(x + 1) = (x - 2)^2$

$$\begin{aligned}
 \underline{3.} \quad a.) \quad & 8x - (6 - 4x) = 2 \\
 & 8x - 6 + 4x = 2 \\
 & 12x - 6 = 2 \quad | +6 \\
 & 12x = 8 \quad | :12 \\
 & \underline{x = \frac{2}{3}} = \frac{2}{3} \quad 1
 \end{aligned}$$

$$\begin{aligned}
 b.) \quad & 7 - (6x + 5) = -4 \\
 & 7 - 6x - 5 = -4 \\
 & 2 - 6x = -4 \quad | +6x \\
 & 2 = 6x - 4 \quad | +4 \\
 & 6 = 6x \quad | :6 \\
 & \underline{1 = x} \quad 1
 \end{aligned}$$

$$\begin{aligned}
 c.) \quad & 12x + (-10x - 8) = 6x \\
 & 12x - 10x - 8 = 6x \\
 & 2x - 8 = 6x \quad | -2x \\
 & -8 = 4x \quad | :4 \\
 & \underline{-2 = x} \quad 1
 \end{aligned}$$

$$\begin{aligned}
 d.) \quad & 20 + (10 - 20x) = -10x \\
 & 20 + 10 - 20x = -10x \\
 & 30 - 20x = -10x \quad | +20x \\
 & 30 = 10x \quad | :10 \\
 & \underline{3 = x} \quad 1
 \end{aligned}$$

$$e.) \quad 3x - (2+x) = -6 + (5x-4)$$

$$3x - 2 - x = -6 + 5x - 4$$

$$2x - 2 = -10 + 5x \quad | -2x$$

$$-2 = -10 + 3x \quad | +10$$

$$8 = 3x \quad | :3$$

$$\underline{\underline{\frac{8}{3} = x}} \quad \uparrow$$

$$f.) \quad \frac{x}{4} + (x-2) = 1$$

$$\frac{x}{4} + x - 2 = 1 \quad | \cdot 4$$

$$x + 4x - 8 = 4$$

$$5x - 8 = 4 \quad | +8$$

$$5x = 12 \quad | :5$$

$$\underline{\underline{x = \frac{12}{5}}} \quad \uparrow$$

$$g.) \quad x - \left(4 - \frac{x}{3}\right) = -8$$

$$x - 4 + \frac{x}{3} = -8 \quad | \cdot 3$$

$$3x - 12 + x = -24$$

$$4x - 12 = -24 \quad | +12$$

$$4x = -12 \quad | :4$$

$$\underline{\underline{x = -3}} \quad \uparrow$$

$$h.) \quad \frac{5}{6} - \left(x - \frac{5}{9}\right) = 2x$$

$$\frac{5}{6} - x + \frac{5}{9} = 2x \quad | \cdot 18$$

$$15 - 18x + 10 = 36x$$

$$25 - 18x = 36x \quad | +18x$$

$$25 = 54x \quad | :54$$

$$\underline{\underline{\frac{25}{54} = x}} \quad \uparrow$$

$$i.) \quad 3(x-4) - 2(x+3) = 4x+6$$

$$3x - 12 - 2x - 6 = 4x + 6$$

$$x - 18 = 4x + 6 \quad | -x$$

$$-18 = 3x + 6 \quad | -6$$

$$-24 = 3x \quad | :3$$

$$\underline{\underline{-8 = x}} \quad \uparrow$$

10

$$j.) \quad (x-3)(x+1) = (x-2)(x-2)$$

$$\cancel{x^2} - 2x - 3 = \cancel{x^2} - 4x + 4 \quad | +4x$$

$$2x - 3 = 4 \quad | +3$$

$$2x = 7 \quad | :2$$

$$\underline{\underline{x = \frac{7}{2}}} \quad \uparrow$$

20 Pkte