

1.

a.)

Figur 1	Figur 2	Figur 3	Figur 4
16	40	64	88
+24		+24	

$$\Rightarrow \text{Figur } x : \underline{\underline{24 \cdot x - 8}}$$

oder:

Figur 1	Figur 2	Figur 3	Figur 4
$4^2 - (4-4)^2$	$7^2 - (7-4)^2$	$10^2 - (10-4)^2$	$13^2 - (13-4)^2$

$$\begin{aligned} \Rightarrow \text{Figur } x &: (3 \cdot x + 1)^2 - (3x + 1 - 4)^2 = \\ &= (3x + 1)^2 - (3x - 3)^2 = \\ &= 9x^2 + 6x + 1 - (9x^2 - 18x + 9) = \\ &= 9x^2 + 6x + 1 - 9x^2 + 18x - 9 = \\ &= \underline{\underline{24x - 8}} \end{aligned}$$

$$\begin{aligned} \text{b.) } 24 \cdot 501 - 8 &- (24 \cdot 500 - 8) = \\ 12'016 &- 11'992 = \end{aligned}$$

24

(siehe 1. Lösung Aufgabe 1a !)

2.

a.)

Figur 1	Figur 2	Figur 3	Figur 4
1	1 + 5	1 + 5 + 9	1 + 5 + 9 + 13

$\Rightarrow (1+13) \cdot \frac{4}{2}$   
 $4 \cdot 4 - 3$

$$\Rightarrow \text{Figur } x : (1 + x \cdot 4 - 3) \cdot \frac{x}{2} =$$
$$(4x - 2) \cdot \frac{x}{2} =$$
$$\underline{\underline{2x^2 - x}}$$

$$\text{b.) } \begin{array}{r} 2 \cdot 81^2 - 81 \\ 13'041 \end{array} - \begin{array}{r} (2 \cdot 80^2 - 80) \\ 12'720 \end{array} =$$
$$\underline{\underline{321}}$$

oder:

$$4 \cdot 81 - 3 = \underline{\underline{321}}$$

$$\text{c.) } \begin{array}{l} 2x^2 - x = 79'800 \\ x \cdot (2x - 1) = 79'800 \end{array}$$

$$\Rightarrow \underline{\underline{\text{Ausprobieren:}}} \quad \underline{\underline{x = 200}}$$

$$\text{d.) } \begin{array}{l} 2x^2 - x > 1'000'000 \\ x \cdot (2x - 1) > 1'000'000 \end{array}$$

$$\Rightarrow \underline{\underline{\text{Ausprobieren:}}} \quad \underline{\underline{x \geq 708}}$$

3.

Figur 1	Figur 2	Figur 3
$5 \cdot 5 - 1 - 2$ $\swarrow$ $1+4$	$6 \cdot 6 - 2 - 2$ $\swarrow$ $2+4$	$7 \cdot 7 - 3 - 2$ $\swarrow$ $3+4$

$$\begin{aligned}\Rightarrow \text{Figur } x &= (x+4)(x+4) - x - 2 = \\ &= x^2 + 8x + 16 - x - 2 = \\ &= \underline{\underline{x^2 + 7x + 14}}\end{aligned}$$

$$b.) \quad 72^2 + 7 \cdot 72 + 14 = \underline{\underline{5702}}$$

Figur 1	Figur 2	Figur 3
$4 \cdot 5 + 2 \cdot 1$ $\swarrow$ $1+4$	$4 \cdot 6 + 2 \cdot 2$ $\swarrow$ $2+4$	$4 \cdot 7 + 2 \cdot 3$ $\swarrow$ $3+4$

$$\begin{aligned}\Rightarrow \text{Figur } x &= 4 \cdot (x+4) + 2 \cdot x = \\ &= 4x + 16 + 2x = \\ &= \underline{\underline{6x + 16}}\end{aligned}$$

$$d.) \quad 6 \cdot 47 + 16 = \underline{\underline{298}}$$