Summen- und Produktzeichen

Stufe 2: Summenformeln anwenden

Name: _____ Datum: _____

Berechne die Summen mit einer Summenformel – ohne alle Summanden einzeln zu addieren.

1) $\sum_{k=1}^{7} k^2 =$ _____

2) $\sum_{k=0}^{7} 2^k =$ _____

3) $\sum_{k=1}^{80} k =$ _____

4) $\sum_{k=0}^{5} 3^k =$ _____

5) $\sum_{k=1}^{40} k =$ _____

6) $\sum_{k=1}^{60} k =$ _____

7) $\sum_{k=1}^{6} k^2 =$ _____

8) $\sum_{k=1}^{23} (2k-1) =$ _____

9) $\sum_{k=1}^{20} (2k-1) =$ _____

10) $\sum_{k=1}^{1000} k =$ _____

11) $\sum_{k=1}^{200} k =$ _____

12) $\sum_{k=1}^{33} (2k-1) =$ _____

Lösungen: Summen- und Produktzeichen

Stufe 2: Summenformeln anwenden

1) $\sum_{k=1}^{7} k^2 = \frac{7 \cdot 8 \cdot 15}{6} = 140$

2) $\sum_{k=0}^{7} 2^k = \frac{2^8 - 1}{2 - 1} = 255$

3) $\sum_{k=1}^{80} k = \frac{80 \cdot 81}{2} = 3240$

4) $\sum_{k=0}^{5} 3^k = \frac{3^6 - 1}{3 - 1} = 364$

5) $\sum_{k=1}^{40} k = \frac{40 \cdot 41}{2} = 820$

6) $\sum_{k=1}^{60} k = \frac{60 \cdot 61}{2} = 1830$

7) $\sum_{k=1}^{6} k^2 = \frac{6 \cdot 7 \cdot 13}{6} = 91$

8) $\sum_{k=1}^{23} (2k - 1) = 23^2 = 529$

9) $\sum_{k=1}^{20} (2k - 1) = 20^2 = 400$

10) $\sum_{k=1}^{1000} k = \frac{1000 \cdot 1001}{2} = 500500$

11) $\sum_{k=1}^{200} k = \frac{200 \cdot 201}{2} = 20100$

12) $\sum_{k=1}^{33} (2k - 1) = 33^2 = 1089$