

KEY

More Practice: Sigma Notation

Write the terms of the series and evaluate the partial sum

1. $\sum_{n=1}^5 8 + 2(n-1) = 8 + 10 + 12 + 14 + 16 = 60$

2. $\sum_{n=1}^6 4 \cdot 3^{n-1} = 4 + 12 + 36 + 108 + 324 + 972 = 1456$

3. $\sum_{k=2}^7 18 - 3(k-1) = \cancel{18} + 15 + 12 + 9 + 6 + 3 + 0 = 45$
k=1 k=2 3 4 5 6 7

4. $\sum_{n=3}^5 1.2 \cdot 3^{n-1} = \cancel{1.2} + \cancel{3.6} + 10.8 + 32.4 + 97.2 = 140.4$
n=1 2 3 4 5

5. $\sum_{n=1}^4 3n - 2 = 1 + 4 + 7 + 10 = 22$

Write the given series in sigma notation

6. $7 + 10 + 13 + 16 + 19 + 22 + 25 + 28 + 31 + 34 + 37 + 40$
+3

$\sum_{n=1}^{12} 7 + 3(n-1)$

7. $8 + 11 + 14 + \dots + 80$ $80 = 8 + 3(n-1)$ $72 = 3(n-1)$
+3

$\sum_{n=1}^{25} 8 + 3(n-1)$

8. $\frac{3}{1} + \frac{3}{2} + \frac{3}{4} + \dots + \frac{3}{1024}$ $3(\frac{1}{2})^{n-1} = \frac{3}{1024} \rightarrow \frac{1}{2}^{n-1} = \frac{1}{1024} \rightarrow 2^{n-1} = 1024$ $n-1 = \log_2 1024 = 10$ $n = 11$
 $\times \frac{1}{2}$

$\sum_{n=1}^{11} 3(\frac{1}{2})^{n-1}$

9. $-10 - 8 - 6 - 4 \dots 20$ $20 = -10 + 2(n-1)$ $30 = 2(n-1)$ $15 = n-1$ $n = 16$
+2

$\sum_{n=1}^{16} -10 + 2(n-1)$

10. $6 + 24 + 96 + 384 + \dots$
 $\times 4$

$\sum_{n=1}^{\infty} 6 \cdot 4^{n-1}$