

1. Evaluate:

$$\sum_{n=3}^{18} 7n - 4$$

2. Write in summation notation: $14 + 5 + -4 + -13 + \dots -130$

3. Find the number of terms in this sequence:

 $7, 21, 63, 189, \dots, 45927$

1. Evaluate: $\sum_{n=3}^{18} 7n - 4$ ← Arithmetic

Terms: from 3 to 18 is 16 terms

1st TERM $t_1 = 7(3) - 4 = 17$

LAST TERM $t_{16} = 7(18) - 4 = 122$

$$S_{16} = \frac{16}{2} (17 + 122)$$

$$= 8(139)$$

$$S_{16} = 1112$$

2. Write in summation notation: $14 + 5 + -4 + -13 + \dots -130$

Arithmetic

$$d = -9$$

Explicit Formula: $t_n = 14 - 9(n-1)$

Terms:

$$\begin{array}{r} -130 = 14 - 9(n-1) \\ -14 \quad -14 \end{array}$$

$$\begin{array}{r} -144 = -9(n-1) \\ -9 \quad -9 \end{array}$$

$$n = 17$$

$$\begin{array}{r} 16 = n-1 \\ +1 \quad +1 \end{array}$$

3. Find the number of terms in this sequence:

7, 21, 63, 189, ... 45927

Geometric $r = 3$

$$189 \cdot r \cdot r \cdot r \dots = 45927$$

$$\frac{189 r^x}{189} = \frac{45927}{189}$$

$$r^x = 243 \Rightarrow 3^x = 243$$

what power of 3 equals 243?

$$x = 5$$

therefore, the last term is 5 terms after 189. Since 189 is the 4th term 45927 is the 9th term.

9 terms