

$$\sum_{k=1}^n c = nc$$

$$\sum_{k=1}^n k = \frac{n(n+1)}{2}$$

$$\sum_{k=1}^n k^2 = \frac{n(n+1)(2n+1)}{6}$$

Use the formulas listed above to evaluate each of the following. Show work!

1. $\sum_{k=1}^{36} 20 =$	2. $\sum_{n=1}^{120} 77 =$	3. $\sum_{j=1}^{300} (-4) =$
4. $\sum_{k=1}^{36} k =$	5. $\sum_{j=1}^{120} (7j + 2) =$	6. $\sum_{m=1}^{300} (-4m) =$
7. $\sum_{m=1}^{36} (2m^2) =$	8. $\sum_{j=1}^{120} (6j^2 + j) =$	9. $\sum_{n=1}^{36} (-3n + 20) =$

<p>10. $\sum_{j=1}^{100} (3j^2 - 2j + 8)$</p>	<p><u>Review</u> 11. Write a recursive formula for the following sequence 4, 10, 16, ...</p>	<p>12. Write the first five terms of each sequence. $a_n = 6n + 5$</p>
<p>13. Write an explicit formula for the sequence. 2, -6, 18, -54,</p>	<p>14. State whether the sequence is arithmetic, geometric or neither. If it is arithmetic, identify d, If it is geometric identify r. 9, 3, 1, $\frac{1}{3}$, $\frac{1}{9}$, ...</p>	<p>15. Find the 30th term of the arithmetic sequence in which $a_5 = 17$ and $a_{14} = 44$</p>

ANSWERS:

- | | | | |
|----------------------------------|--------------------|-------------------------|---------------|
| 1. 720 | 2. 9,240 | 3. -1,200 | |
| 4. 666 | 5. 51060 | 6. -180,600 | |
| 7. 32,412 | 8. 3,506,580 | 9. -1,278 | 10. 1,005,750 |
| 11. $a_1 = 4; a_n = a_{n-1} + 6$ | 12. 11,17,23,29,35 | 13. $a_n = 2(-3)^{n-1}$ | |
| 14. geometric; $r = \frac{1}{3}$ | 15. $a_{30} = 92$ | | |