

- 1) Write the 1st five terms of the sequence whose n th term is $a_n = \frac{n+2}{n^2+1}$.
- 2) Write the 1st five terms of the sequence whose n th term is $a_n = \frac{(-2)^n}{n!}$.
- 3) Find the sum: $\sum_{k=0}^5 \frac{k!}{3}$
- 4) Find the sum: $\sum_{n=1}^4 \frac{n-1}{n+2}$
- 5) Find the third term of the sequence whose n th term is $a_n = \frac{(-1)^{n-1}}{n}$.
- 6) Which of the following is an arithmetic sequence?
 - (a) 1, 2, 3, 7, 9, ...
 - (b) 5, 7, 11, 13, 16, ...
 - (c) -10, -6, -2, 2, 6, ...
 - (d) All of these
 - (e) None of these
- 7) Find the 1st 5 terms of the arithmetic sequence with $a_1 = 20$ and $d = -\frac{1}{2}$
- 8) Find a formula for the n th term of the sequence: $\frac{2}{1}, \frac{4}{1}, \frac{6}{2}, \frac{8}{6}, \frac{10}{24}, \dots$
- 9) Find a_n for the sequence with $a_1 = 12$, $d = \frac{1}{3}$, and $n = 42$.
- 10) Find the 99th term of the arithmetic sequence with $a_1 = 13$ and $d = -3$
- 11) Find the sum of the first 40 terms of the arithmetic sequence:
25, 35, 45, 55, 65, ...
- 12) Find the sum of the first 15 terms of the arithmetic sequence whose n th term is $a_n = 3n - 1$.
- 13) Find a formula for a_n for the arithmetic sequence with $a_2 = 25$ and $d = \frac{3}{2}$
- 14) $\sum_{k=1}^{500} (3k - 5)$

- 15) Which of the following is a geometric sequence?
(a) -1, -3, -5, -9, ... (b) 2, 3, 5, 7, 11, ...
(c) 1, 2, 4, 7, 11, 16, ... (d) -2, 4, -8, 16, -32, ...
- 16) Find the 1st 5 terms of the geometric sequence with $a_1 = 6$ and $r = \frac{3}{2}$
- 17) Find the 20th term of the geometric sequence with $a_1 = 3$ and $r = 1.1$
- 18) Find the sum of the first 20 terms of the geometric sequence with $a_1 = 3$ and $a_2 = \frac{3}{2}$.
Round to three decimal places.
- 19) Find the formula for the n th term of the geometric sequence with $a_1 = 7$ and $r = \frac{1}{3}$
- 20) A city of 500,000 people is growing at a rate of 1% per year. Find a formula for the n th term of the geometric sequence that gives the population n years from now. Then estimate the population 20 years from now.
- 21)
$$\sum_{k=0}^{\infty} 4 \left(\frac{1}{3} \right)^k$$
- 22) Determine the seating capacity of an auditorium with 30 rows of seats if there are 25 seats in the first row, 28 seats in the second row, 31 seats in the third row, and so on.