

DAY 3: Series Homework

KEY

Find the partial sum  $S_n$  of the arithmetic sequence that satisfies the given conditions.

1.  $a_1 = 1, d = 2, n = 10$  100
2.  $a_1 = 3, d = 2, n = 12$  168
3.  $a_1 = 4, d = 2, n = 20$  460
4.  $a_1 = 100, d = -5, n = 8$  660
5.  $a_1 = 55, d = 12, n = 10$  1090
6.  $a_1 = 8, d = 3, n = 15$  435

Find the partial sum  $S_n$  of the geometric sequence that satisfies the given conditions.

7.  $a_1 = 5, r = 2, n = 6$  315
8.  $a_1 = \frac{2}{3}, r = \frac{1}{3}, n = 4$   $\frac{80}{81}$
9.  $a_1 = 28, r = -2, n = 6$  -588
10.  $a_1 = 0.12, r = -3, n = 4$  -2.4

Determine whether each infinite geometric series converges. If it converges, find the sum.

11.  $1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27} + \dots$  CONV  $\frac{3}{2}$
12.  $1 - \frac{1}{2} + \frac{1}{4} - \frac{1}{8} + \dots$  CONV  $\frac{2}{3}$
13.  $1 - \frac{1}{3} + \frac{1}{9} - \frac{1}{27} + \dots$  CONV  $\frac{3}{4}$
14.  $\frac{2}{5} + \frac{4}{25} + \frac{8}{125} + \dots$  CONV  $\frac{2}{3}$