Alg 2B Final Exam Review Chapter 11 Fall 2017

Find the sum of each series, if it exists

1. $-13 + -7 + -1 + \ldots + 89$

2. $3.5 + 14 + 56 + 224 + \ldots$

3. $33 + 27 + 21 + 15 + \ldots$

4. $1.25 + 2.5 + 5 + \ldots + 5120$

5. $5000 + 1000 + 200 + 40 + \ldots$

6. Determine if each sequence is Arithmetic, Geometric, or Neither, state the next three terms, then write an explicit formula.

a) $48, 72, 108, 162, \ldots$

b) $\frac{3}{4}, \frac{6}{9}, \frac{9}{16}, \frac{12}{25}, \ldots$

c) $175, 160, 145, 130, \ldots$

7. Determine if each seqence is Arithmetic, Geometric, or Neither, state the next three terms, then write a recursive formula.

a) $77, 73, 65, 53, 37, \ldots$

b) $1152, -864, 648, -486 \ldots$

c) $75, 77.5, 80, 82.5, \ldots$

8. Find the missing terms in each sequence.

a) arithmetic sequence

$19, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_, 84$

b) geometric sequence

$8, \_\_\_, \_\_\_, \_\_\_, 2048$

9. Find the 30th term in this arithmetic sequence using the given information.

$a_5 = 26 \quad a_{11} = 11$

10. Find the 19th term in this geometric sequence using the given information.

$a_3 = 24 \quad a_6 = -192$

11. Find the limit of each sequence, if it exists.

a) $576, 144, 36, 9, \ldots$

b) $64, 57, 50, 43, \ldots$

c) $\frac{100}{16}, \frac{200}{25}, \frac{300}{36}, \frac{400}{49}, \ldots$

d) $\frac{8}{75}, \frac{27}{76}, \frac{64}{77}, \frac{125}{78}, \ldots$

e) $32, 33.6, 35.28, 37.044, \ldots$

f) $\frac{10}{4}, \frac{15}{5}, \frac{20}{6}, \frac{25}{7}, \ldots$

12. Find the number of terms in each sequence.

a) Arithmetic Sequence

$13, 22, 31, 40, \ldots, 391$

b) Geometric Sequence

$0.0625, 0.125, 0.25, 0.5, \ldots, 65536$

Alg 2B Chapter 11 Final Exam Review Fall 2017 ANSWERS

1. $S_{18} = 684$

2. No Sum (infinite Geometric Series with $|r| > 1$)

3. No Sum (Arithmetic Series)

4. $S_{13} = 10238.75$

5. $S = 6250$

6. a) Geometric , $243, 364.5, 456.75$, $a_n = 48(1.5)^{n-1}$
   b) Neither, $\frac{15}{36}, \frac{18}{49}, \frac{21}{64}$, $a_n = \frac{3n}{(n+1)^2}$
   c) Arithmetic, $115, 100, 85$, $a_n = 175 - 15(n-1)$

7. a) Neither, $17, -7, -35$
   $a_1 = 77$
   $a_n = a_{n-1} - 4(n-1)$
   b) Geometric, $364.5, -273.375, 205.03125$
   $a_1 = 1152$
   $a_n = (a_{n-1})(-0.75)$
   c) Arithmetic, $85, 87.5, 90$
   $a_1 = 75$
   $a_n = a_{n-1} + 2.5$

8. a) missing terms: $32, 45, 58, 71$ b) $\pm 32, 128, \pm 512$

9. $a_{30} = -36.5$

10. $a_{19} = 1572864$

11. a) Geometric $r = 0.25$ $Limit = 0$ b) Arithmetic: NO LIMIT
    c) $a_n = \frac{100n}{(n+3)^2}$ $Limit = 0$ d) $a_n = a_n = \frac{(n+1)^3}{n+74}$ NO LIMIT
    e) Geometric $r = 1.05$ NO LIMIT f) $a_n = \frac{5(n+1)}{n+3}$ $Limit = \frac{5}{1} = 5$

12. a) 43 terms b) 21 terms