

# College Algebra - Chapter 8

Name \_\_\_\_\_

## Example 1:

Find a formula for the  $n^{\text{th}}$  term of the arithmetic sequence whose first term is 5 and common difference is 4.

## Example 3:

Find a formula for the  $n^{\text{th}}$  term of the arithmetic sequence whose first term is 6 and common difference is -4.

## Example 5:

Find a formula for the  $n^{\text{th}}$  term of the arithmetic sequence whose third term is 12 and common difference is 3.

7.

Find a formula for the  $n^{\text{th}}$  term of the arithmetic sequence whose second term is 15 and common difference is 7.

9.

Find a formula for the  $n^{\text{th}}$  term of the arithmetic sequence whose seventh term is 58 and whose eleventh term is 42.

## Example 2:

Find a formula for the  $n^{\text{th}}$  term of the arithmetic sequence whose first term is 2 and common difference is 11.

4.

Find a formula for the  $n^{\text{th}}$  term of the arithmetic sequence whose first term is 7 and common difference is 5.

## Example 6:

Find a formula for the  $n^{\text{th}}$  term of the arithmetic sequence whose second term is 21 and common difference is 9.

8.

Find a formula for the  $n^{\text{th}}$  term of the arithmetic sequence whose fourth term is 31 and common difference is 5.

10.

Find a formula for the  $n^{\text{th}}$  term of the arithmetic sequence whose fifth term is 13 and whose twentieth term is 58.

$$\sum_{i=1}^n a_i = n \left( \frac{a_1 + a_n}{2} \right)$$

11.

Find the tenth term of the geometric sequence whose first term is 24 and whose common ratio is 1.25.

12.

Find the 14<sup>th</sup> term of the geometric sequence whose first three terms are 2, 8, and 32.

13.

The fifth term of a geometric sequence is 81. The tenth term is  $\frac{19683}{32}$ . Find the formula for the nth term.

14.

Find the 11<sup>th</sup> term of a geometric sequence whose first three terms are 3, 15, 75.

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The third term of a geometric sequence is 16. The tenth term is 1/32. Find the formula for the nth term

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The eighth term of a geometric sequence is 384. The thirteenth term is 12288. Find the formula.

Notes:

If  $|r| < 1$ , then the sum of the infinite geometric series  $a_1 + a_1 r + a_1 r^2 + a_1 r^3 + \dots + a_1 r^{n-1} + \dots$  is given by:

$$\sum_{n=1}^{\infty} a_1 r^{n-1} = \frac{a_1}{1-r}$$