

Algebra II

11-1

Types of Sequences

Sequence - A list of numbers, usually in a pattern

Arithmetic Sequence - A sequence whose terms vary by a common difference.

(The same number is added or subtracted to get the next number.)

Find the common difference and find the missing terms for the Arithmetic Sequence - $d=4$

$$*1) \quad 3, 7, 11, 15, \frac{19}{4}, \frac{23}{4}$$

$\begin{array}{cccccc} \checkmark & \checkmark & \checkmark & \checkmark & & \checkmark \\ 4 & 4 & 4 & 4 & & 4 \end{array}$

Geometric Sequence - A sequence whose terms vary by a common ratio.

(multiply or divide.)

Find the common ratio and find the missing terms for the Geometric Sequence -

$$*2) \quad 2, 6, 18, 54, \frac{162}{3}, \frac{486}{3}$$

$\begin{array}{cccccc} \checkmark & \checkmark & \checkmark & \checkmark & & \checkmark \\ 3 & 3 & 3 & 3 & & 3 \end{array}$

$r=3$

Tell whether each sequence is arithmetic, geometric, or neither. Then supply the missing terms of the sequence.

1) 20, 17, 14, 11, 8, 5 Arithmetic

$\begin{array}{cc} \checkmark & \checkmark \\ -3 & -3 \end{array} \quad d=-3$

7) $\frac{1}{7}, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}, \frac{1}{25}, \frac{1}{36}, \frac{1}{49}$ Neither

$\frac{1}{7} \quad \frac{1}{2^2} \quad \frac{1}{3^2} \quad \frac{1}{4^2} \quad \frac{1}{5^2} \quad \frac{1}{6^2} \quad \frac{1}{7^2}$

Find the first four terms of each sequence with the given formula. Then state whether it is Arithmetic, Geometric, or Neither

13) $t_n = 3^{n-1}$

$$\begin{aligned} t_1 &= 3^{1-1} = 3^0 = 1 \\ t_2 &= 3^{2-1} = 3^1 = 3 \\ t_3 &= 3^{3-1} = 3^2 = 9 \\ t_4 &= 3^{4-1} = 3^3 = 27 \end{aligned}$$

Geometric
($r=3$)

Find the next two terms of the sequence using the pattern between the terms.

23) 60, 48, 38, 30, 24, 20, 18

$\swarrow \quad \swarrow \quad \swarrow \quad \swarrow \quad \swarrow \quad \swarrow$
-12 -10 -8 -6 -4 -2

Assignment:

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1-31 all.