5, 10, 15, ... find the 18th term

$a_1 = 5$

$n = 18$

$D = +5$

$D = +5$ common difference

$a_{18} = 5 + (18-1)(5)$

$a_{18} = 5 + (17)(5)$

$a_{18} = 5 + 85$

$a_{18} = 90$

$a_n = a_1 + (n-1) \cdot D$

An arithmetic sequence goes from one term to the next by always adding (or subtracting) the same value. This value is known as the common difference.

a_n = term # a_1 = 1st term

D = common difference

12, 24, 48, ... $R = 2$

find the 12th term

$a_{12} = 12(2)^{11}$

$= 12(2048)$

$a_{12} = 24,576$

100, 50, 25... $R = 1/2$

find the 6th term

$a_1 = 100$ $n = 6$ $R = \frac{1}{2}$

$a_6 = 100\left(\frac{1}{2}\right)^{6-1}$

$= 100\left(\frac{1}{2}\right)^5$

$= 100\left(\frac{1}{32}\right)$

$= \frac{100}{32} = 3.125$

$a_n = a_1 (r)^{(n-1)}$

A geometric sequence goes from one term to the next by always multiplying (or dividing) by the same value. This value is known as the common ratio.

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Assignment