C11 - 1.4 - Geometric Sequence sum terms WS

Find the fourth, fifth and sixth terms of the sequence.

2, + 4, 8, + _____, + _____, + _____ =

3, + 9, + 27, + _____, + _____, + _____ =

1, + 2, + 4, + _____, + _____, + _____ =

5, + 20, + 80, + _____, + _____, + ____ =

4, + 6, + 9, + _____, + _____, + _____ =

4, + 2, + 1, + _____, + _____, + _____ =

9, + 3, + 1, + _____, + _____, + _____ =

10, + 100, + 1000, + _____, + _____, + _____ =

4, + 10, + 25, + _____, + _____, + _____ =

7, + 14, + 28, + _____, + _____, + _____ =

2, + 12, + 72, + _____, + _____, + _____ =

6, + 1, + $\frac{1}{6}$, + _____, + _____, + _____ =

$\frac{1}{3}$, + $\frac{1}{9}$, + 1/27, + _____, + _____, + _____ =

2, + -4, + 8, + _____, + _____, + _____ =

$\frac{1}{2}$, + $\frac{3}{2}$, + $\frac{9}{2}$, + _____, + _____, + _____ =

x, + x^2, + x^3, + _____, + ____, +____ =

C11 - 1.4 - Geometric Series WS

$\times 3$ $\times 3$

$2, \quad 6, \quad 18, \ldots \quad ?, \ldots ?$

$t_1 \quad t_2 \quad t_3 \quad t_6 \quad t_n$

$n = 1 \quad n = 2 \quad n = 3 \quad n = n$

$t_1 = first\ term$
$r = common\ ratio$
$t_n = term\ n$
$n = number\ of\ terms$

$t_1 = 2$

$r = \frac{t_n}{t_{n-1}}$ $\quad r = \frac{t_n}{t_{n-1}}$ $\quad \boxed{r = \frac{t_n}{t_{n-1}}}$ *A term divided by the term before it*

$r =$ $\quad r =$

Geometric: r must always be the same

What is the sum of the first six terms s_6? $s_6 = ?, n = 6$.

$s_n = \frac{t_1(1 - r^n)}{1 - r}$ $\quad \boxed{s_n = \frac{t_1(1 - r^n)}{1 - r}}$ Sum of "n" terms formula (if number of terms is known)

Check your answer: $2 + 6 + 18 +$

OR

$s_n = \frac{t_1 - rt_n}{1 - r}$ $\quad t_n =$ $\quad \boxed{s_n = \frac{t_1 - rt_n}{1 - r}}$ Sum of "n" terms formula (if last term t_n is known)

What is the sum of an infinite number of terms?

$r =$ $\quad r > 1, \therefore$

C11 - 1.4 - Geometric Sequence $find\ t_1, r$ WS

Find the sum of the first 6 terms. $s_6 = ?, n = 6$

$2, 4, 8, ..$ $s_n = \frac{t_1(1-r^n)}{1-r}$ $3, 9, 27, ...$ $5, 25, 125, ...$

Find the sum of the first 9 terms

$8, -4, 2, ...$ $-6, -18, -54$ $5, 10, 20, ...$

Find the sum of the first 11 terms.

$2, \frac{1}{2}, \frac{1}{4}, ...$ $9, -3, -\frac{1}{3}, ...$ $27, 3, \frac{1}{3},$

Find the sum of the first 5 terms.

$1, 2, 4, ...$ $10, 100, 1000, ...$ $0.3, 0.33, 0.333, ...$

C11 - 1.4 - Geometric find 'n' WS

Find n, and the sum

$2, 4, 8, \ldots . . 256 \rightarrow t_n$

$t_n = t_1 r^{n-1}$ $\quad s_n = \frac{t_1 - r t_n}{1 - r}$

$3, 9, 27, \ldots \ldots . . 729$

$5, 25, 125, \ldots \ldots .3125$

$8, -4, 2, \ldots \ldots . . \frac{1}{256}$

$-6, -36, -216 \ldots \ldots \ldots - 46656$

$5, 10, 20, \ldots \ldots \ldots 160$

$2, \frac{1}{2}, \frac{1}{8}, \ldots \ldots \ldots \frac{1}{512}$

$9, -3, 1, \ldots \ldots \frac{1}{81}$

$27, 3, \frac{1}{3}, \ldots \ldots . . \frac{1}{2187}$

$1, 2, 4, \ldots \ldots .65536$

$10, 100, 1000, \ldots \ldots .1000000$

$0.3, 0.03, 0.003, \ldots 0.00000000003$