

Assignment  
P. 635(6-38e)

①

9.3 Geometric Sequences

Geometric Sequence - ratio of consecutive numbers are the same.

$$\frac{a_{n+1}}{a_n} = r \quad (\text{common ratio} = r)$$

ex : 2, 4, 8, 16, ...

$$\frac{4}{2} = 2 \quad \frac{16}{8} = 2$$

②

N<sup>th</sup> term of geom seq.

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

OR

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

③

⑦  $\frac{1}{27}, \frac{1}{9}, \frac{1}{3}, 1, \dots$

geom  
r = 3

$$\frac{1}{9} = \frac{27}{9} = 3 \quad \frac{1}{3} = \frac{9}{3} = 3 \quad \frac{1}{1} = 3$$

★ Same ratio so geometric

④

⑭  $a_1 = 7 \quad r = 4$

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

$$a_2 = 7(4)^{2-1} = 28$$

$$a_3 = 7(4)^{3-1} = 28(4) = 112$$

$$a_4 = 7(4)^{4-1} = 112(4) = 448$$

$$a_5 = 7(4)^{5-1} = 448(4) = 1792$$

⑤

⑳  $a_1 = 5 \quad r = \frac{7}{2}$

$a_8 = ?$

$$a_n = 5\left(\frac{7}{2}\right)^{n-1}$$

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

$$= 5\left(\frac{7}{2}\right)^{8-1}$$

$$= 5\left(\frac{7}{2}\right)^7$$

$$= 5\left(\frac{7^7}{2^7}\right)$$

$$= \frac{5(823543)}{128}$$

$$= \frac{4117715}{128}$$

⑥

⑳  $9, 18, 36$

$$\frac{18}{9} = 2 \quad \frac{36}{18} = 2 \quad \text{so } r = 2$$

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

$$a_n = 9(2)^{n-1}$$