

Spiral Review #9.1

1. Determine the sum of the first twenty terms of the sequence whose first three terms are 5, 12.5, 31.25, ...

Geometric Series

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

$r = 2.5$

$$S_{20} = \frac{5 - 5(2.5)^{20}}{1 - 2.5} = \boxed{303164897.3}$$

$n = 20$
 $a_1 = 5$
 $r = 2.5$

2. What is the explicit formula for the n th term of the sequence 63, 21, 7, ... ?

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

$r = \frac{1}{3}$ Geometric

$$a_n = 63 \left(\frac{1}{3}\right)^{n-1}$$

3. Find the first five terms of the recursive sequence defined below.

$$a_1 = -4$$

$$a_n = a_{n-1} - n$$

$$a_1 = -4$$

$$a_2 = -4 - 2 = -6$$

$$a_3 = -6 - 3 = -9$$

$$a_4 = -9 - 4 = -13$$

$$a_5 = -13 - 5 = -18$$

4. On the first day it posted online, a music video got 1760 views. The number of views that the video got each day increased by 30% per day. How many TOTAL views did the video get over the course of the first 6 days to the nearest whole number?

Geometric Series

$$a_1 = 1760$$

$$r = 1.3$$

$$n = 6$$

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

$$S_6 = \frac{1760 - 1760(1.3)^6}{1 - 1.3} = 22450.6$$

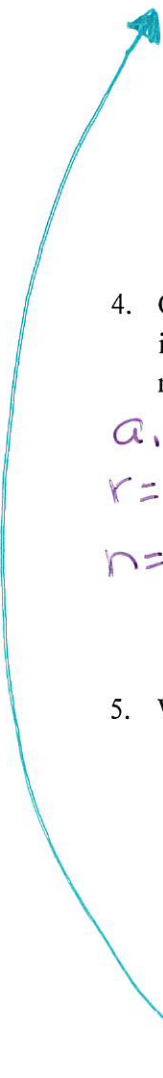
$$= \boxed{22451 \text{ views}}$$

5. What is the recursive formula for the n th term of sequence 12, 15, 18, ... ?

$$a_1 = 12$$

$$a_n = a_{n-1} + 3$$

$d = +3$ arithmetic



Recursive MUST have a_1 AND a_n