

NAME: _____

DATE: 08/24/2017

ASSIGNMENT: Paper Preview 1 (Sequences and Series)

Sum of arithmetic sequence:
$$S_n = \frac{n}{2}(2u_1 + (n-1)d) = \frac{n}{2}(u_1 + u_n)$$

Find n^{th} term of arithmetic sequence:
$$u_n = u_1 + (n-1)d$$

Find n^{th} term of geometric sequence:
$$u_n = u_1 r^{n-1}$$

$$S_n = \frac{u_1(r^n - 1)}{r - 1} = \frac{u_1(1 - r^n)}{1 - r}, \quad r \neq 1$$

Sum of geometric sequence:

$$S_\infty = \frac{u_1}{1 - r}, \quad |r| < 1$$

1.) The sum of the first 20 terms in an arithmetic sequence is -520 . If the 7^{th} term is -5 , find u_1 and d . [6 marks] [SL-calc]

2.) For the sequence $-5, \frac{-5}{3}, \frac{-5}{9}, \frac{-5}{27} \dots$ find $\sum_{n=1}^{\infty}$ and the expression for the n^{th} term. [6 marks] [SL-calc]

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Answer key: show all calculations for full marks.

1.) $u_1 = 31; d = -6$

2.) -7.5

3.) $r = 6, u_6 = 1,555.2$

4.) $d = -6, u_1 = 31, S_{20} = -520$

5.) $\sum_{n=1}^{20} -620$

6.) $289; 50,218$

7.) Use inductive or deductive reasoning.

8.) You must find *all* values of "b."