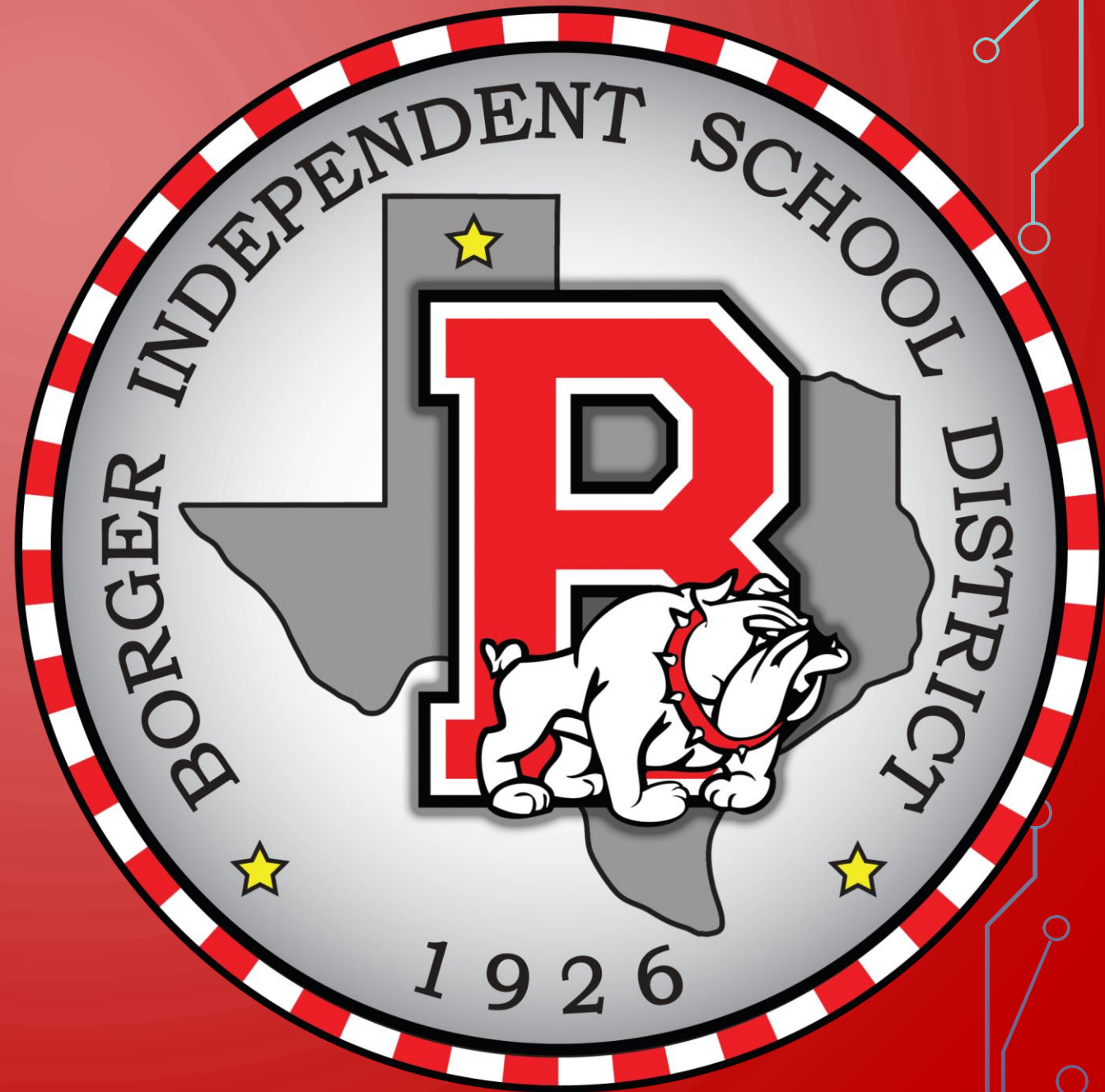# BOARD NOTES

9 MARCH 2020

P.5 (A) evaluate finite sums and geometric series, when possible, written in sigma notation;

P.5 (B) represent arithmetic sequences and geometric sequences using recursive formulas;

P.5 (C) calculate the nth term and the nth partial sum of an arithmetic series in mathematical and real-world problems;

P.5 (D) represent arithmetic series and geometric series using sigma notation;

P.5 (E) calculate the nth term of a geometric series, the nth partial sum of a geometric series, and sum of an infinite geometric series when it exists;
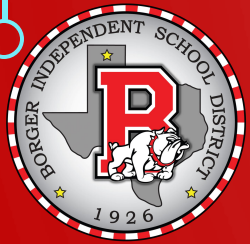
We will be able to determine if a sequence is arithmetic, geometric, or neither.
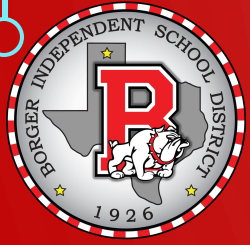
WHAT WE NEED:

- TI-84

I WILL BE ABLE TO COMPLETE MY HOMEWORK GIVEN THE

- Equation

Arithmetic:

$$d = a_2 - a_1$$

$$d = a_3 - a_2$$

Geometric:

$$r = \frac{a_2}{a_1}$$

$$r = \frac{a_3}{a_2}$$

$$a_n = 2(n-7) \qquad n = 1, 2, 3, \ldots$$

$$a_1 = 2(1-7) = -12$$

$$a_2 = 2(2-7) = -10$$

$$a_3 = 2(3-7) = -8$$

$$a_4 = \qquad\qquad = -6$$

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

$$a_1 = \frac{(-1)^1}{2 \cdot 1 - 1} = -1$$

$$a_2 = \frac{(-1)^2}{2(2)-1} = \frac{1}{3}$$

$$a_3 = \frac{(-1)^3}{2(3)-1} = -\frac{1}{5}$$

$$a_4 = \quad = \frac{1}{7}$$

$$a_5 = \quad = -\frac{1}{9}$$

$$a_6 = \quad = \frac{1}{11}$$

$$n = 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8$$

$$1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{7}, \frac{1}{8} \ldots$$

$$a_n = \frac{1}{n}$$

$$a_{343} = \frac{1}{343}$$

$$n = 1 \ 2 \ 3 \ 4$$

$$3, 5, 7, 9, 11, 13, 15 \ldots$$

$$a_n = 2n + 1$$

$$a_{12} = 25$$

$$n = \quad 1 \quad 2 \quad 3 \quad 4$$

$$-1, 1, -1, 1, -1, 1, -1$$

$$a_n = (-1)^n$$

$$a_{15} = -1$$

$$n = \quad 1 \quad 2 \quad 3 \quad 4$$

$$1, -1, 1, -1, 1, -1, 1$$

$$a_n = (-1)^{n+1}$$

$a_,$

4

$-1, 1$

$$a_1 \quad a_2 \quad a_3$$
$$4, 7, 10, 13, 16, 19, 22$$
$$d = 3$$

$$a_2 - a_1$$
$$a_3 - a_2$$

$$a_{17} - a_{16}$$

$$50, 45, 40, 35, 30, 25, 20$$
$$d = -5$$

$2, 6, 18, 54, 162, 486$
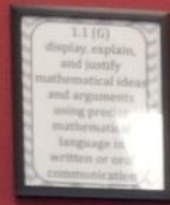
$18 - 6 = 12$

$6 - 2 = 4$

$r = 3$

$\dfrac{a_3}{a_2} = r$

$\dfrac{a_2}{a_1} = r$

$80, -40, 20, -10, 5, -\dfrac{5}{2}$

$r = -\dfrac{1}{2}$

$$\frac{3}{5}, \frac{5}{7}, \frac{7}{9}, \frac{9}{11}, \frac{11}{13}, \frac{13}{15}$$

$$\frac{7}{9} - \frac{5}{7} = \frac{4}{63}$$
$$\frac{5}{7} - \frac{3}{5} = \frac{4}{35}$$
> NOT ARITHMETIC

$$\frac{\frac{7}{9}}{\frac{5}{7}} = \frac{49}{45}$$
$$\frac{\frac{5}{7}}{\frac{3}{5}} = \frac{25}{21}$$
> NOT GEOMETRIC

$$\frac{1}{2}, 1, \frac{3}{2}, 2, \frac{5}{2}, 3$$
$$1 - \frac{1}{2} = \frac{1}{2}$$
$$\frac{3}{2} - 1 = \frac{1}{2} \quad d = \frac{1}{2} \quad A$$

$$\log_2 2, \log_3 4, \log_4 6, \log_5 8, \log_6 10,$$
$$\log_7 12$$

$$.2, .02, .002, .0002, .00002, .000002$$
$$.02 - .2 = -.18$$
$$.002 - .02 = -.018$$

$$\log_3 4 - \log_2 2 = .26$$
$$\log_4 6 - \log_3 4 = .03$$

$$\frac{.02}{.2} = \frac{1}{10} \quad r = \frac{1}{10}$$
$$\frac{.002}{.02} = \frac{1}{10} \quad G$$