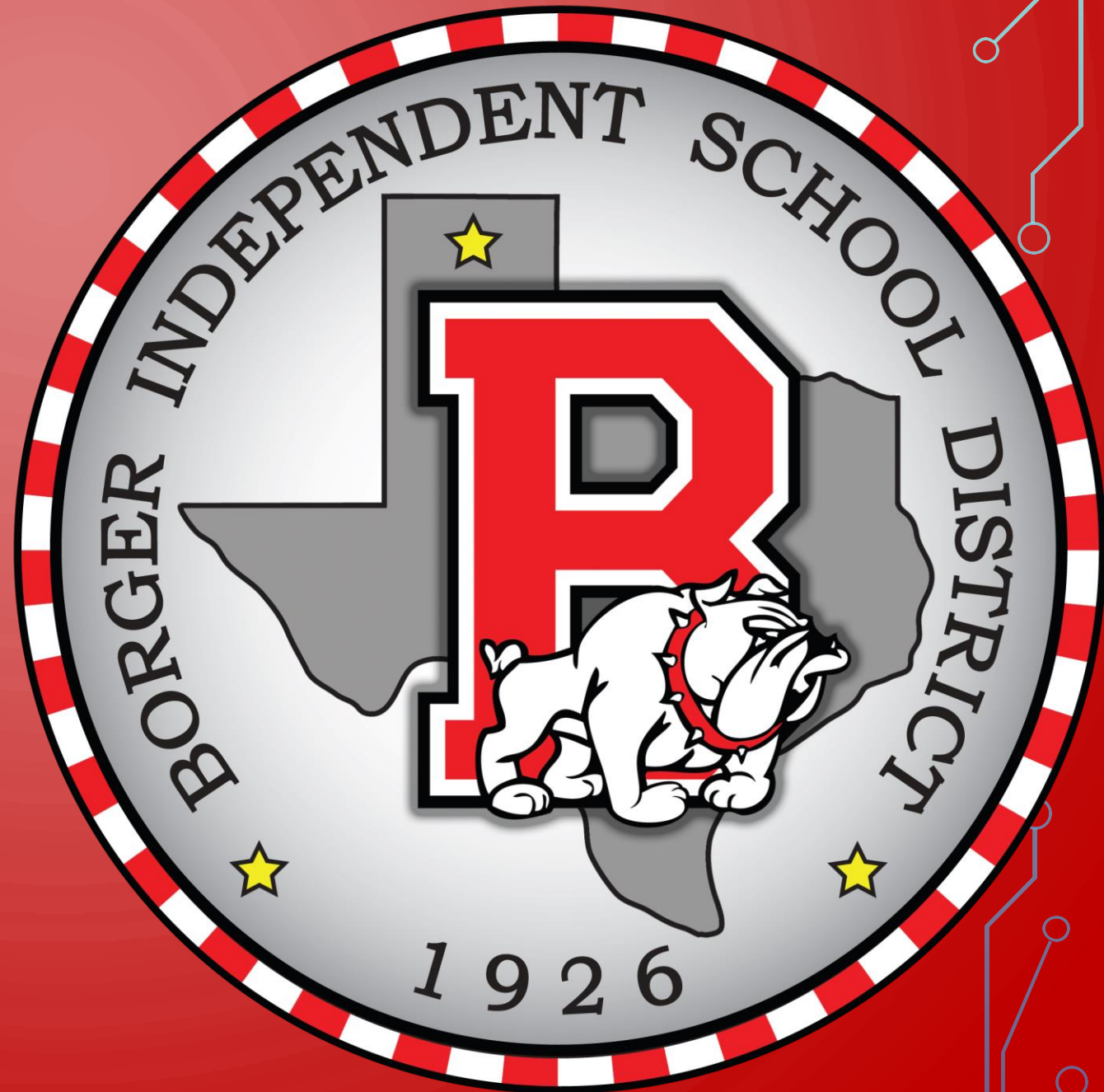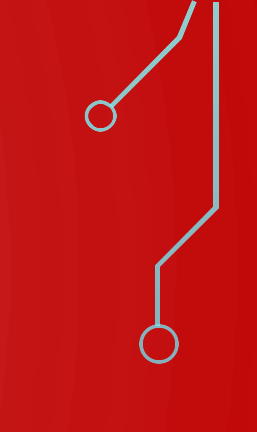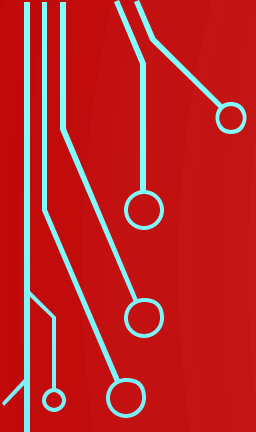# BOARD NOTES

29 AUGUST 2019

2A.2 (A) graph the functions $f(x) = x^2$, $f(x) = \sqrt{x} = \sqrt[2]{x}$, $f(x) = 1/x$, $f(x) = \sqrt[3]{x}$, $f(x) = x^3$, $f(x) = |x|$, $f(x) = b^x$, $f(x) = \log_b x$ where b is 2, 10, and e, and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic behavior, and maximum and minimum given an interval;

2A.2 (D) use the composition of two functions, including the necessary restrictions on the domain, to determine if the functions are inverses of each other;

2A.7 (I) write the domain and range of a function in interval notation, inequalities, and set notation.

We will be able to perform operations on functions.
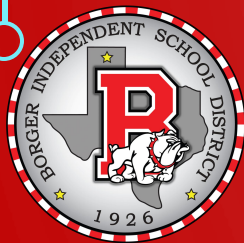
WHAT WE NEED:

- TI – 84
- Definition of:
  - Domain
  - Range
  - Intercepts
  - Increasing vs Decreasing

I WILL BE ABLE TO COMPLETE MY HOMEWORK GIVING THE

- Domain
- Range
- Intercepts (if any)
- Intervals of:
  - Increasing
  - Decreasing
  - Constant

$$-f(x) = --y$$
$$= -(2x^2 + x - 1)$$

1 f) $(g \circ f)(x)$

$+, -, \times, \div, \circ$

$y = f(x)$

$f(x) = x^2 - 3x + 2$ $g(x) = 2x - 4$

$(f + g)(x) = f(x) + g(x)$
$$= x^2 - 3x + 2 + 2x - 4$$
$$= x^2 - x - 2$$
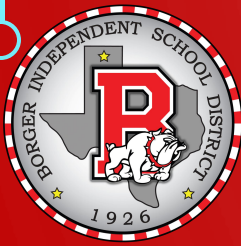
$$(fg)(x) = f(x)g(x)$$

$$= (x^2 - 3x + 2)(2x - 4)$$

$$= 2x^3 - 4x^2 - 6x^2 + 12x + 4x - 8$$

$$= 2x^3 - 10x^2 + 16x - 8$$
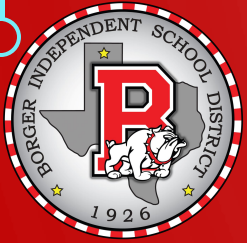
$$\left(\frac{f}{g}\right)(x) = \frac{f(x)}{g(x)}$$

$$= \frac{x^2 - 3x + 2}{2x - 4}$$

$$(f \circ g)(x) = f(g(x))$$

$$= (2x-4)^2 - 3(2x-4) + 2$$

$$(2x-4)^2 = (2x-4)(2x-4)$$

$$= 4x^2 - 8x - 8x + 16$$

$$= 4x^2 - 16x + 16$$

$$= 4x^2 - 16x + 16 - 6x + 12 + 2$$

$$= 4x^2 - 22x + 30$$

$(f$

$=($

$=$
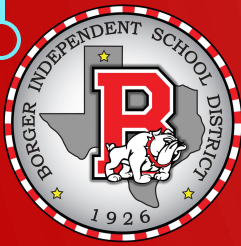
$$- 3(2x-4) + 2$$

$$(-4)(2x-4)$$

$$- 8x - 8x + 16$$

$$- 16x + 16$$

$$x + 16 - 6x + 12 + 2$$

$$x + 30$$

$$(fg)(1)$$

$$= \left(\frac{4}{1}\right)\left(\frac{2\cdot1}{1-2}\right)$$

$$= -8$$

$$f(x) = \frac{4}{x} \qquad g(x) = \frac{2x}{x-2}$$

$$(f-g)(x) = \frac{4}{x} - \frac{2x}{x-2} \qquad CD: \ x(x-2)$$

$$\frac{1}{4} + \frac{1}{3} = \frac{3}{12} + \frac{4}{12}$$

$$= \frac{4(x-2)}{x(x-2)} - \frac{2x(x)}{x(x-2)}$$

$$= \frac{4x - 8 - 2x^2}{x(x-2)}$$