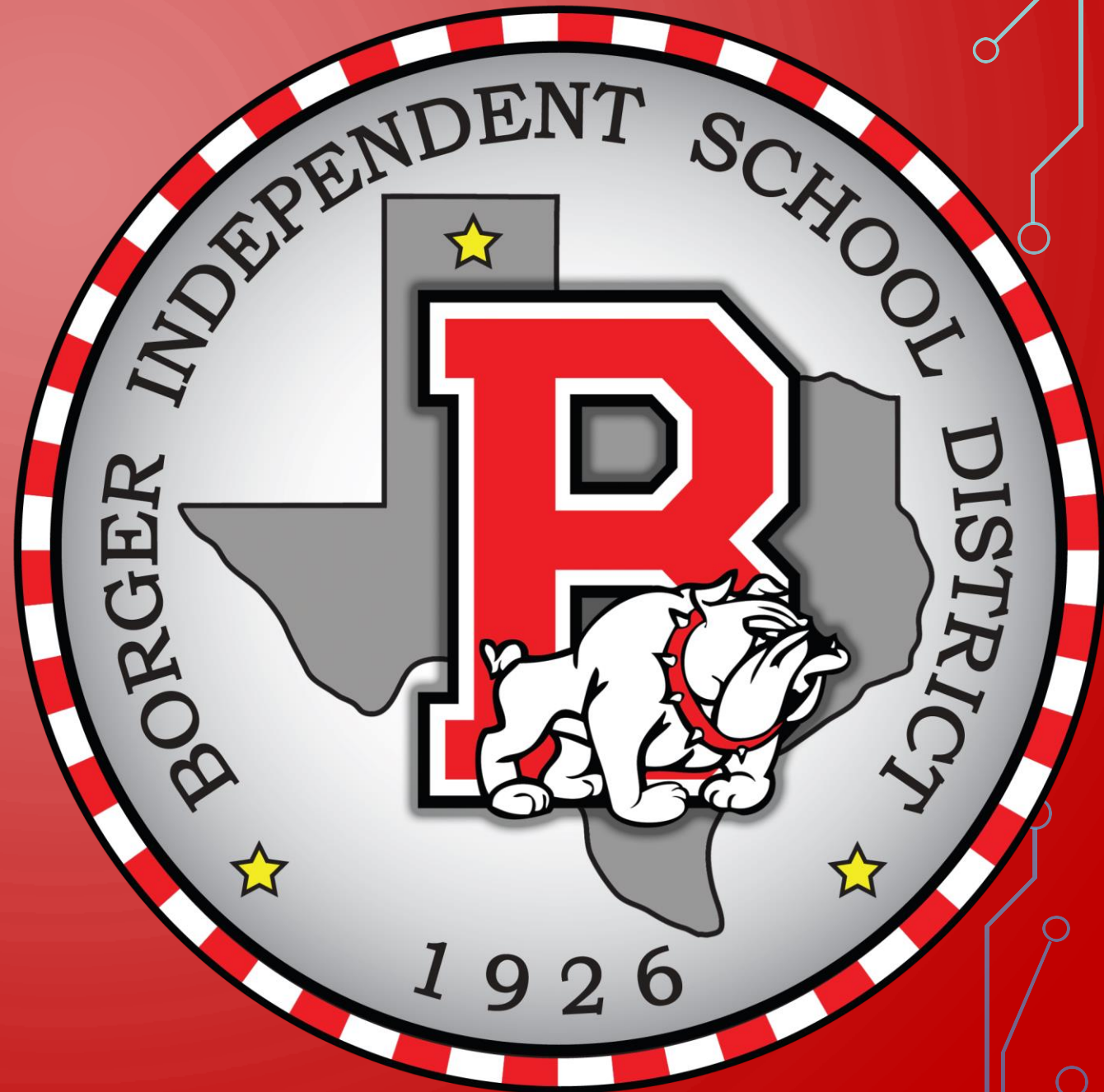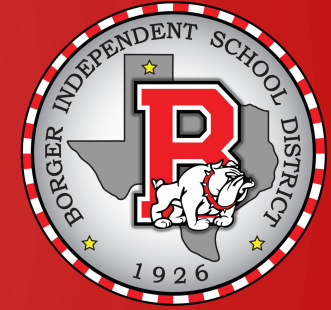# BOARD NOTES

16 OCTOBER 2018

$$R(x) = \frac{2x^2 - 5x + 2}{x^2 - 4}$$

1. Domain:
2. Vertical Asymptotes:
3. Horizontal Asymptotes:
4. Slant Asymptotes:
5. If HA/SA exists, does it cross?
6. x-Intercepts
7. y-Intercepts

$$2x^2 - 5x + 2 = 0$$
$$(2x-1)(x-2) = 0$$

$$(-3,1) \cup (1,\infty)$$

$$x^2 - 4 = 0$$
$$(x-2)(x+2) = 0$$

$$x^4 > x$$

$$2(x+2) = 2x - 1$$
$$2x + 4 = 2x - 1$$
$$0 = -5$$

1) D: $\{x \mid x \neq 2, x \neq -2\}$

VA: $x = -2$

$\quad$ Point of Dis $x = 2$

HA: $y = 2$ $\quad$ DNC

SA: None

X-INT $\quad \dfrac{1}{2}$

Y-INT $\quad -\dfrac{1}{2}$
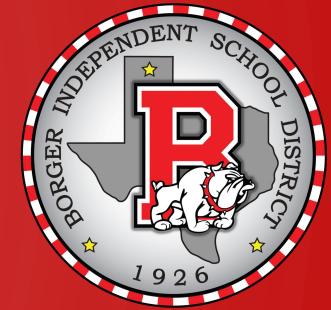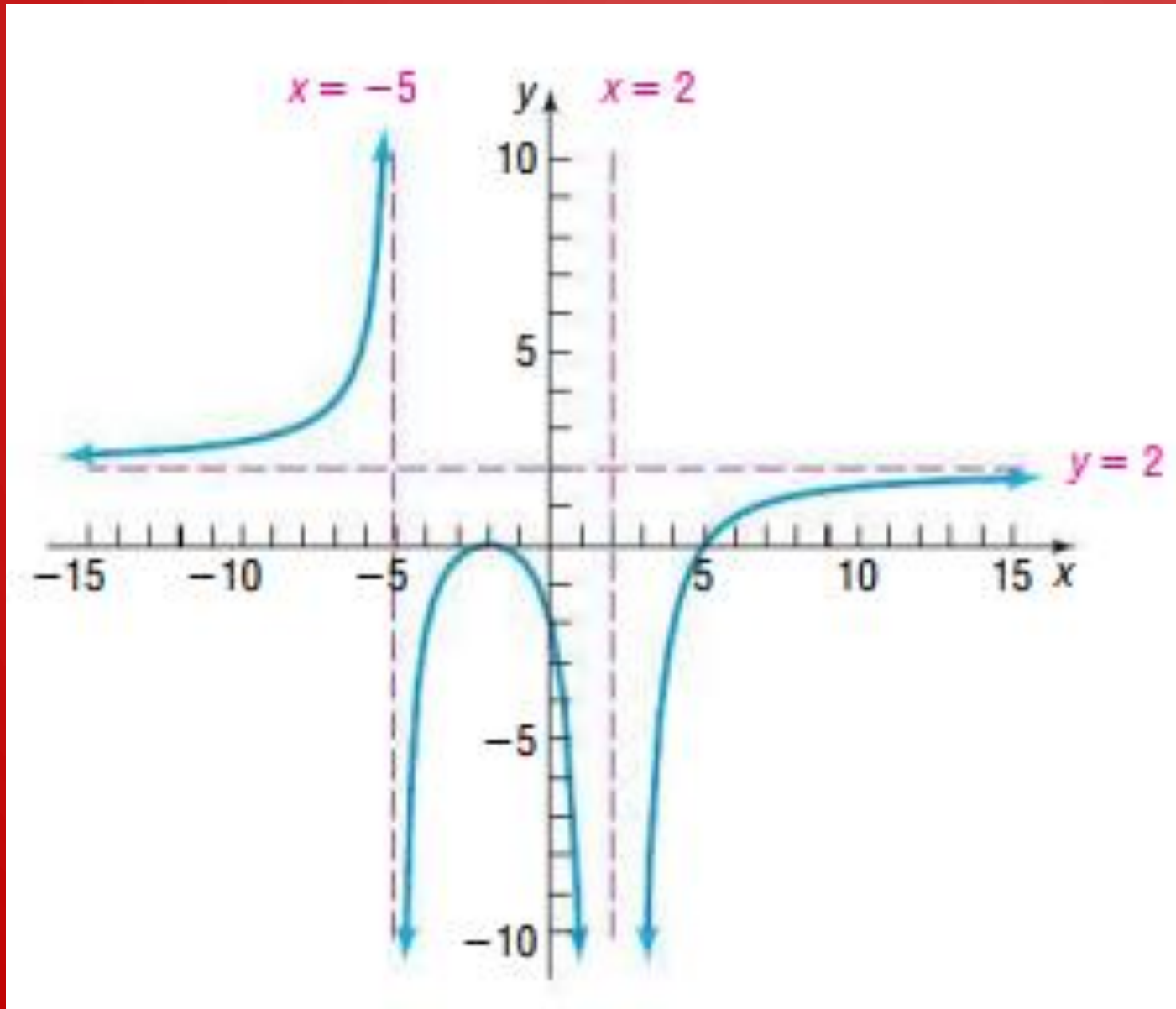
What is a possible equation for the graph?

$$R(x) = \frac{p(x)}{q(x)}$$

ZEROS: $-2\ (2), 5$

HA: $y = 2$

VA: $x = -5, 2$

$p(x)$: USE ZEROS $\Rightarrow p(x) = \dfrac{2(x+2)^2(x-5)}{(x+5)(x-2)^2}$

$q(x)$: USE VA $\Rightarrow q(x) = (x+5)(x-2)^2$
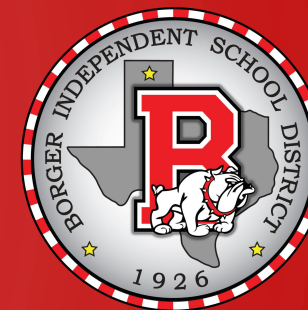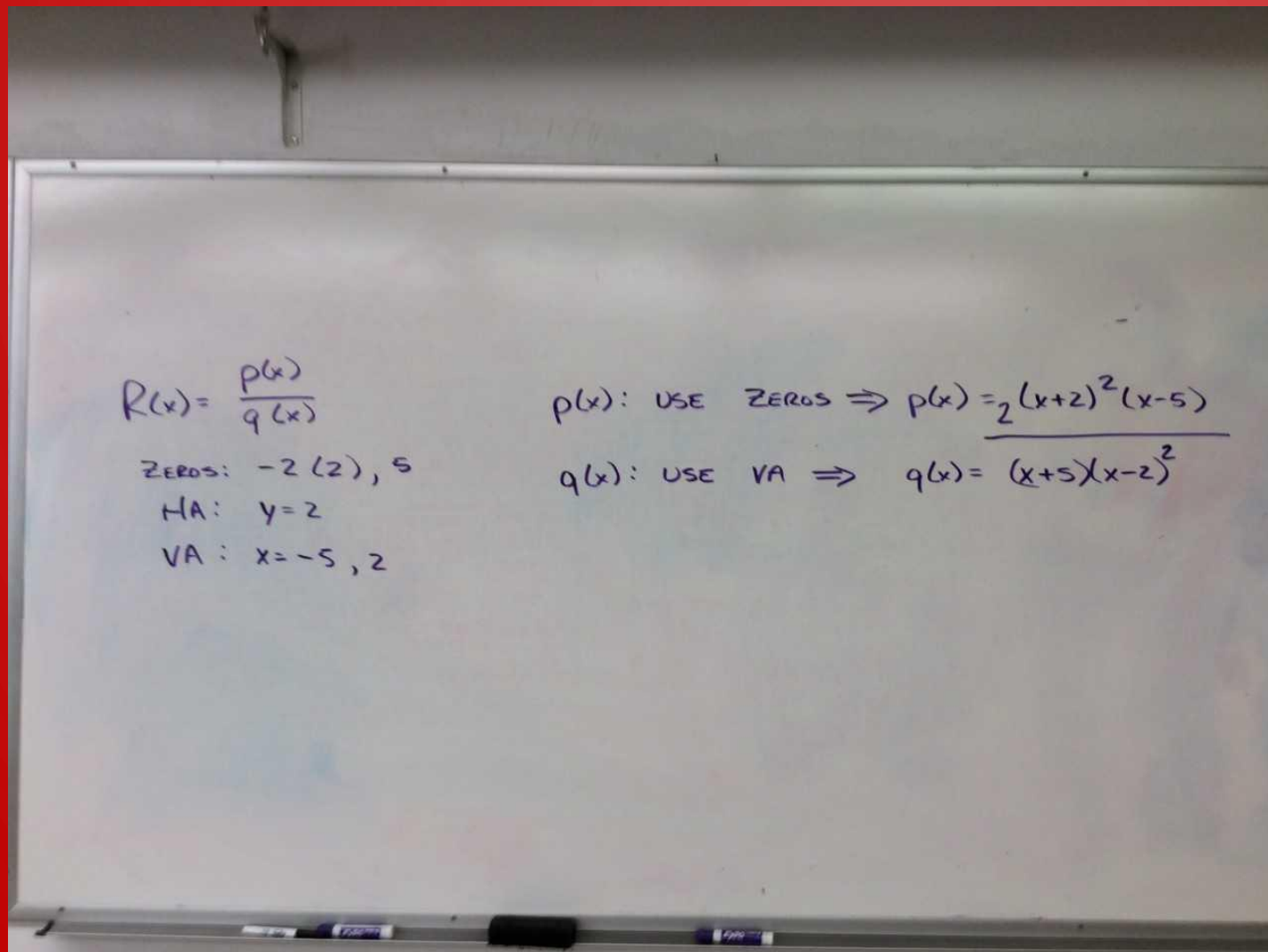
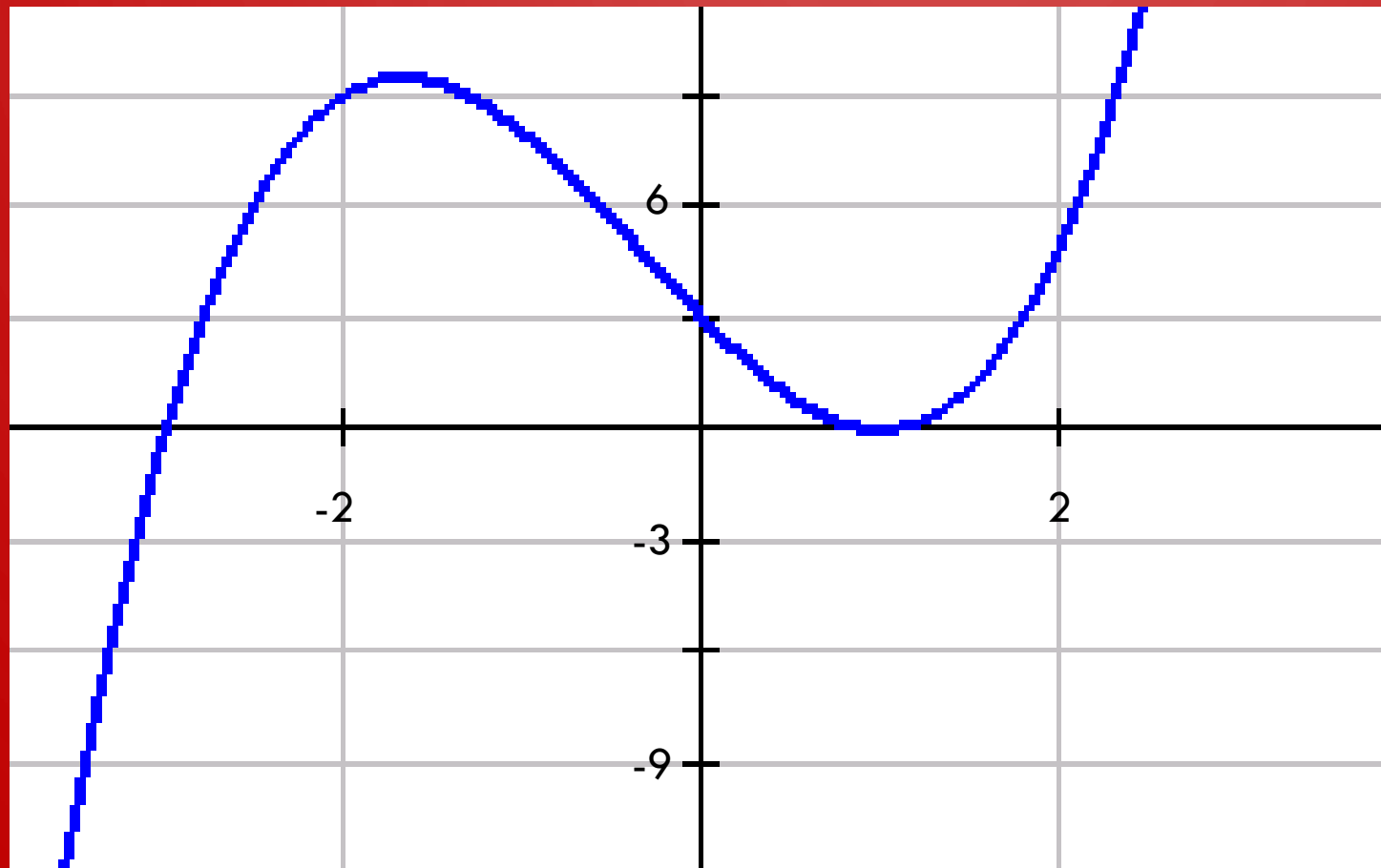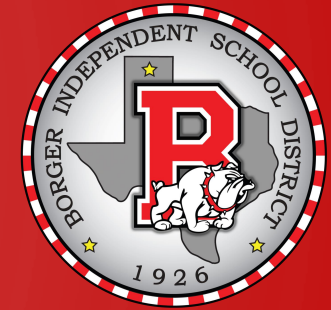# CC PRECALCULUS CHAPTER 4 – POLYNOMIAL AND RATIONAL FUNCTIONS
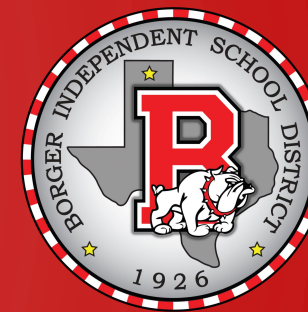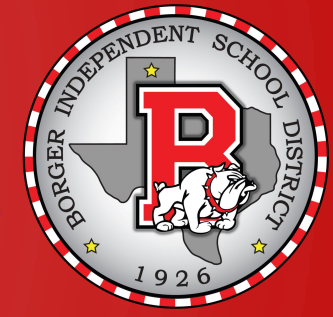
- SECTION 4.4 - POLYNOMIAL AND RATIONAL INEQUALITIES

Objectives:

- Solve polynomial inequalities

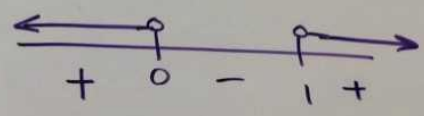- Solve rational inequalities

Solve $(x + 3)(x - 1)^2 > 0$

Solve $x^4 > x$ algebraically.
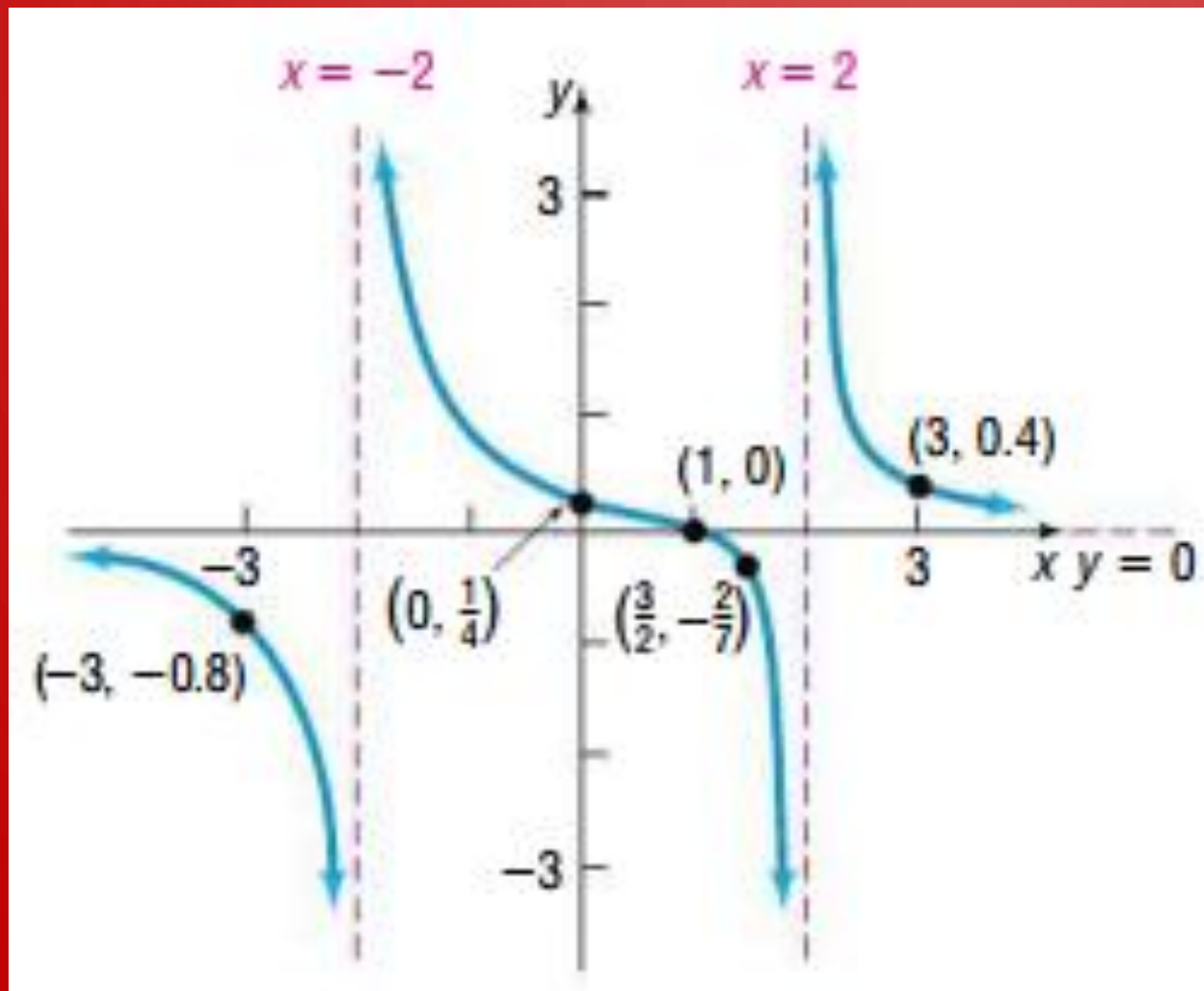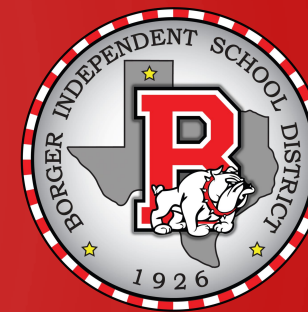
Solution to previous graph

$(-3, 1) \cup (1, \infty)$

$x^4 > x$

$x^4 - x > 0$
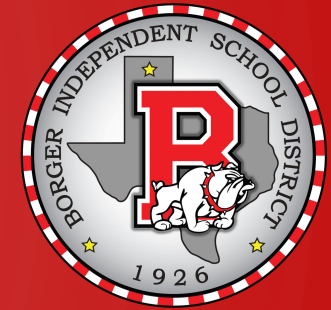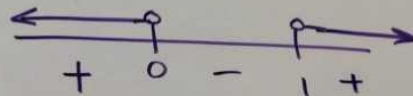
$x(x^3 - 1) > 0$

$x(x-1)(x^2+x+1) > 0$

$(-\infty, 0) \cup (1, \infty)$

$(-2, 1] \cup (2, \infty)$

+   0   −   1   +

Solve $\dfrac{x-1}{x^2-4} \geq 0.$

$(-3,1) \cup (1,\infty)$

$x^4 > x$

$x^4 - x > 0$

$x(x^3 - 1) > 0$

$x(x-1)(x^2+x+1) > 0$

$+ \quad 0 \quad - \quad 1 \quad +$

$(-\infty, 0) \cup ($

Solution to previous graph

$(-2, 1] \cup (2, \infty)$

Solve $\dfrac{3x^2 + 13x + 9}{(x+2)^2} \leq 3$, algebraically.

$$\frac{3x^2 + 13x + 9}{(x+2)^2} - 3 \leq 0$$

$$\frac{3x^2 + 13x + 9 - 3x^2 - 12x - 12}{(x+2)^2} \leq 0$$

$$\frac{x - 3}{(x+2)^2} \leq 0$$