
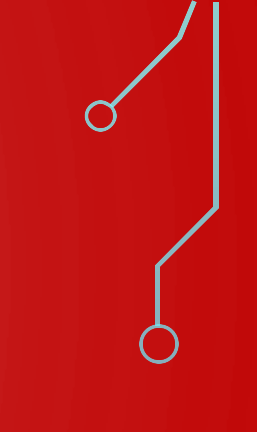
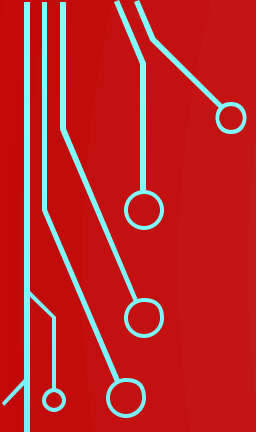


BOARD NOTES

12 SEPTEMBER 2019





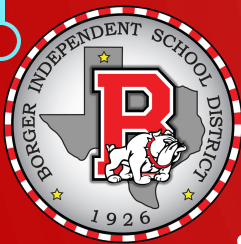
2A.2 (A) graph the functions $f(x) = x^2$, $f(x) = \sqrt{x} = \sqrt[2]{x}$, $f(x) = 1/x$, $f(x) = \sqrt[3]{x}$, $f(x) = x^3$, $f(x) = |x|$, $f(x) = b^x$, $f(x) = \log_b x$ where b is 2, 10, and e , and, when applicable, analyze the key attributes such as domain, range, intercepts, symmetries, asymptotic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



WHAT WE NEED:

- TI – 84

I WILL BE ABLE TO COMPLETE MY HOMEWORK GIVING THE

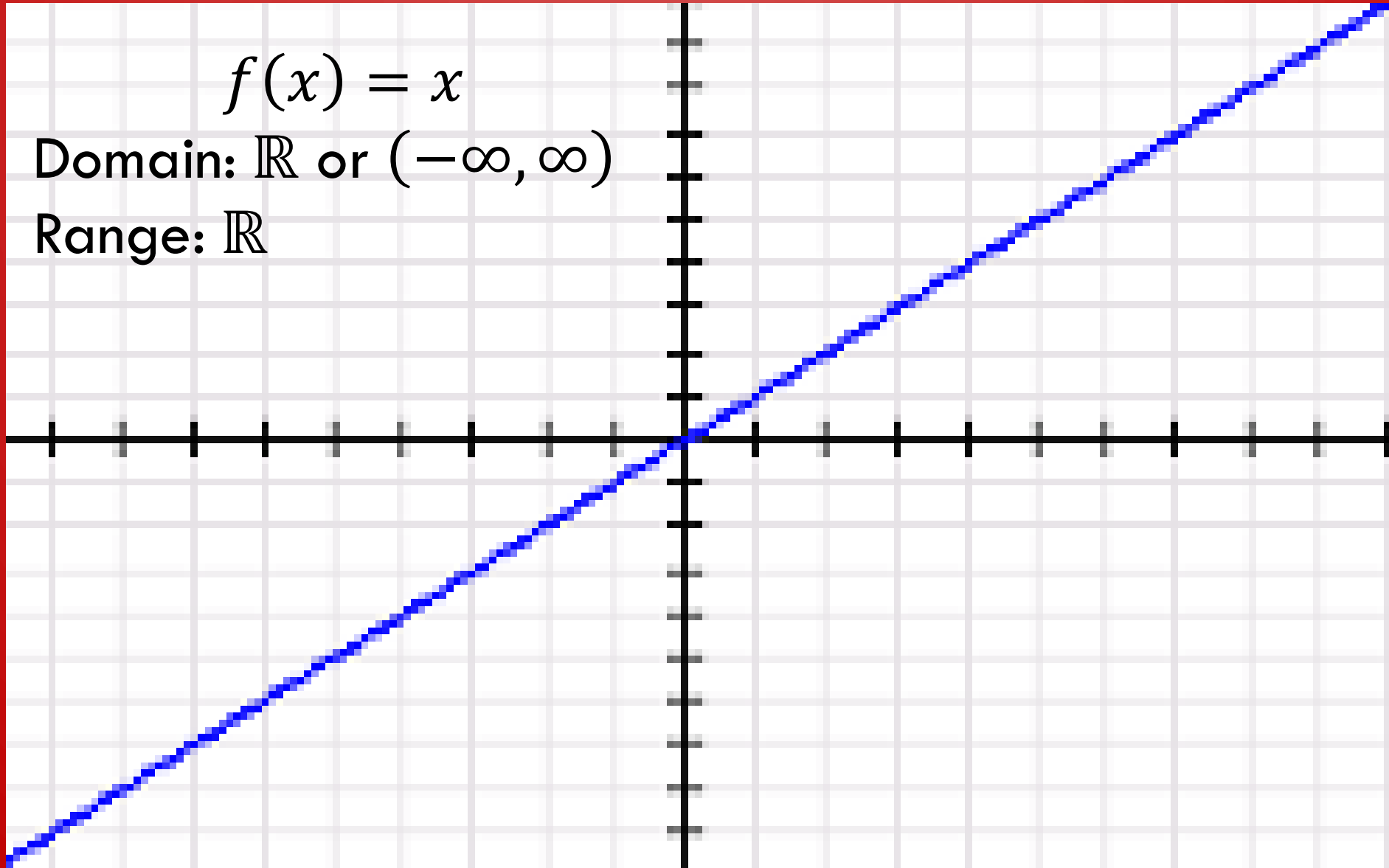
- Domain
- Range
- Intercepts (if any)
- Intervals of: Increasing / Decreasing / Constant
- Reflections
- Even / Odd / Neither
- Transformations

Linear Parent Function

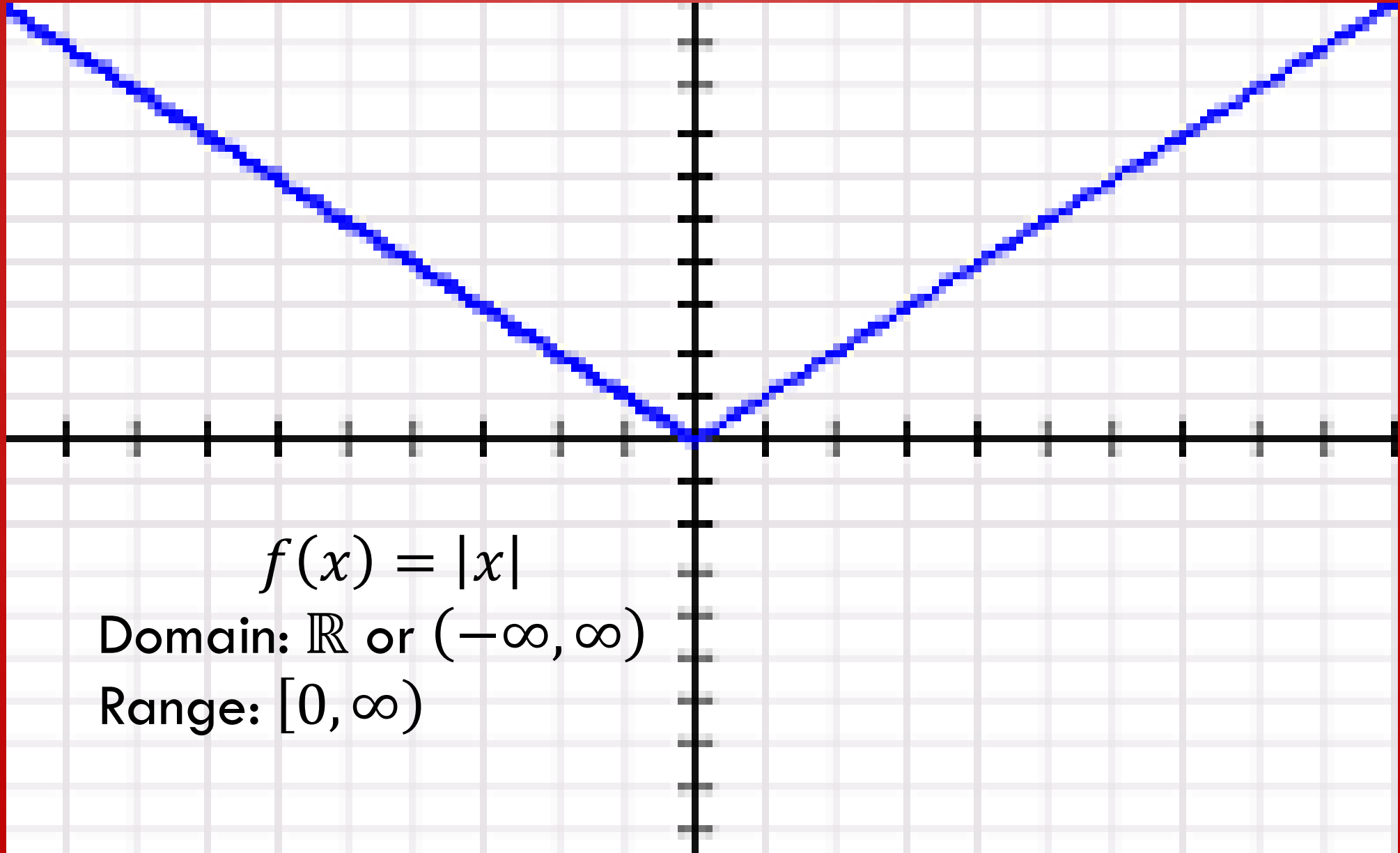
$$f(x) = x$$

Domain: \mathbb{R} or $(-\infty, \infty)$

Range: \mathbb{R}



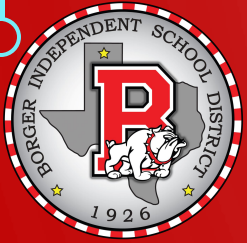
Absolute Value Parent Function



$$f(x) = |x|$$

Domain: \mathbb{R} or $(-\infty, \infty)$

Range: $[0, \infty)$



Reciprocal or Rational Parent Function

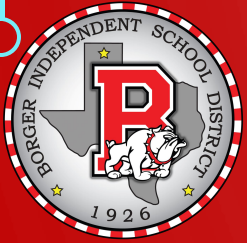
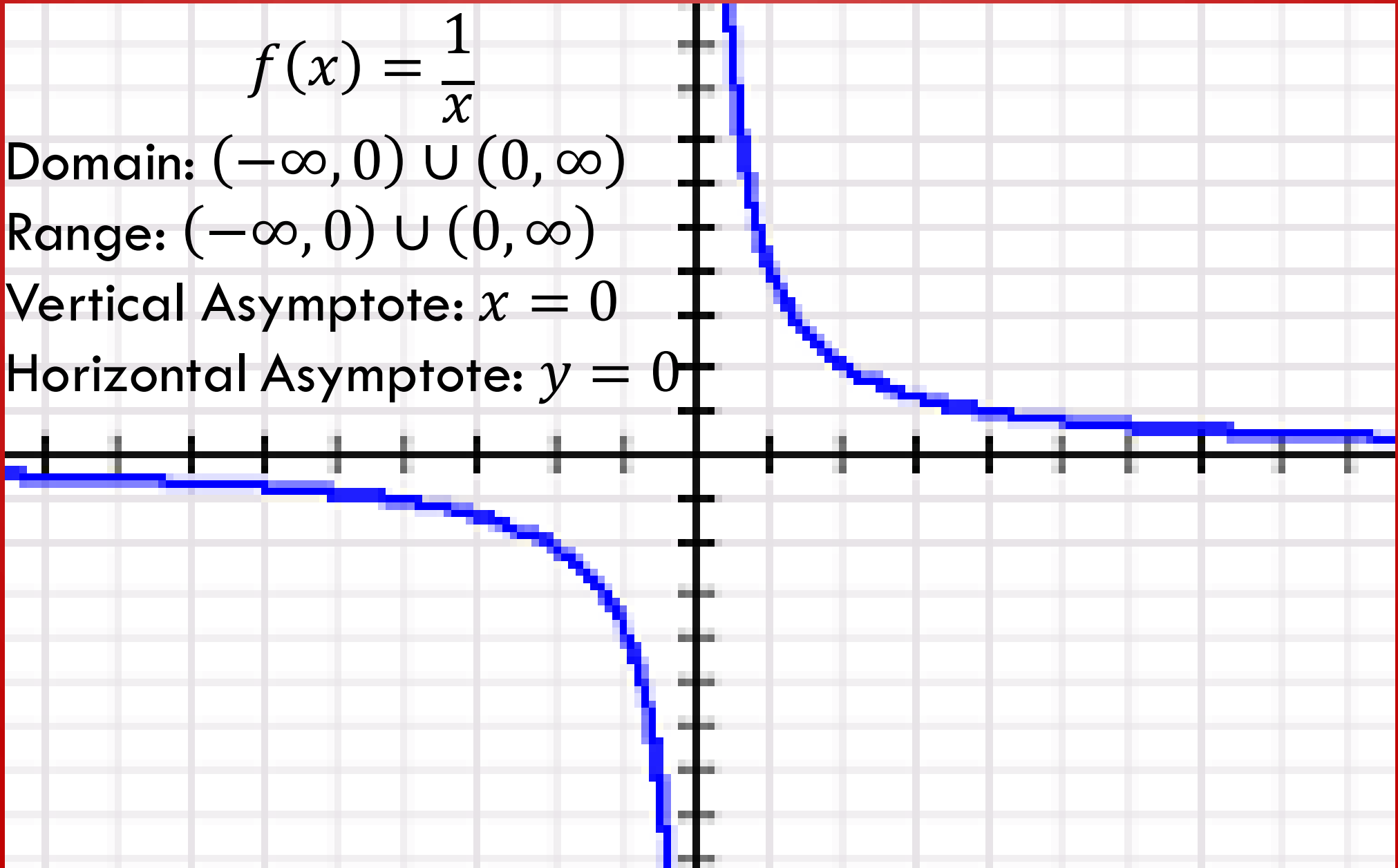
$$f(x) = \frac{1}{x}$$

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

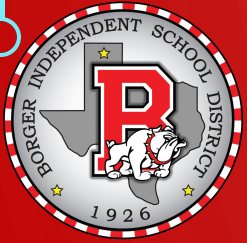
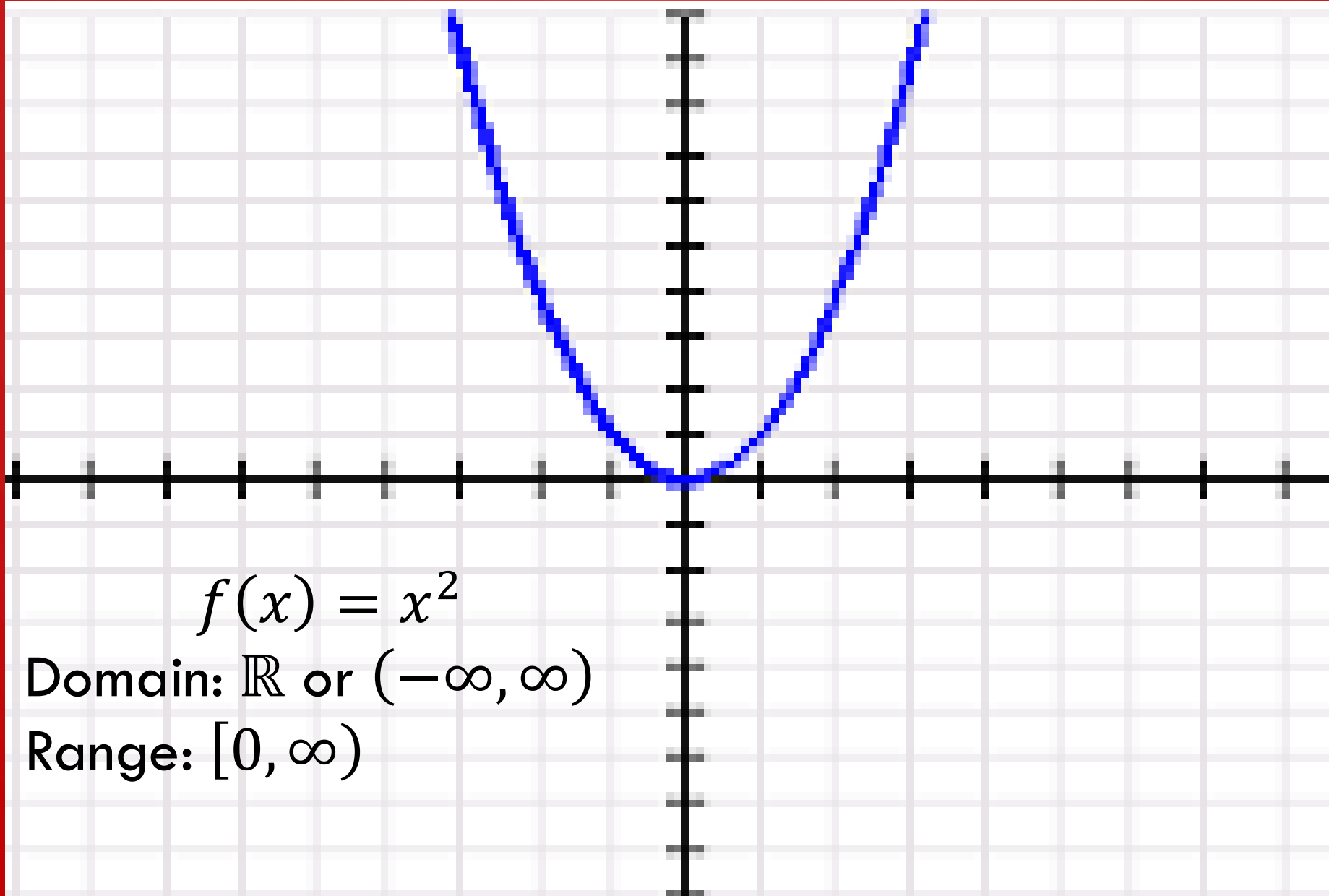
Range: $(-\infty, 0) \cup (0, \infty)$

Vertical Asymptote: $x = 0$

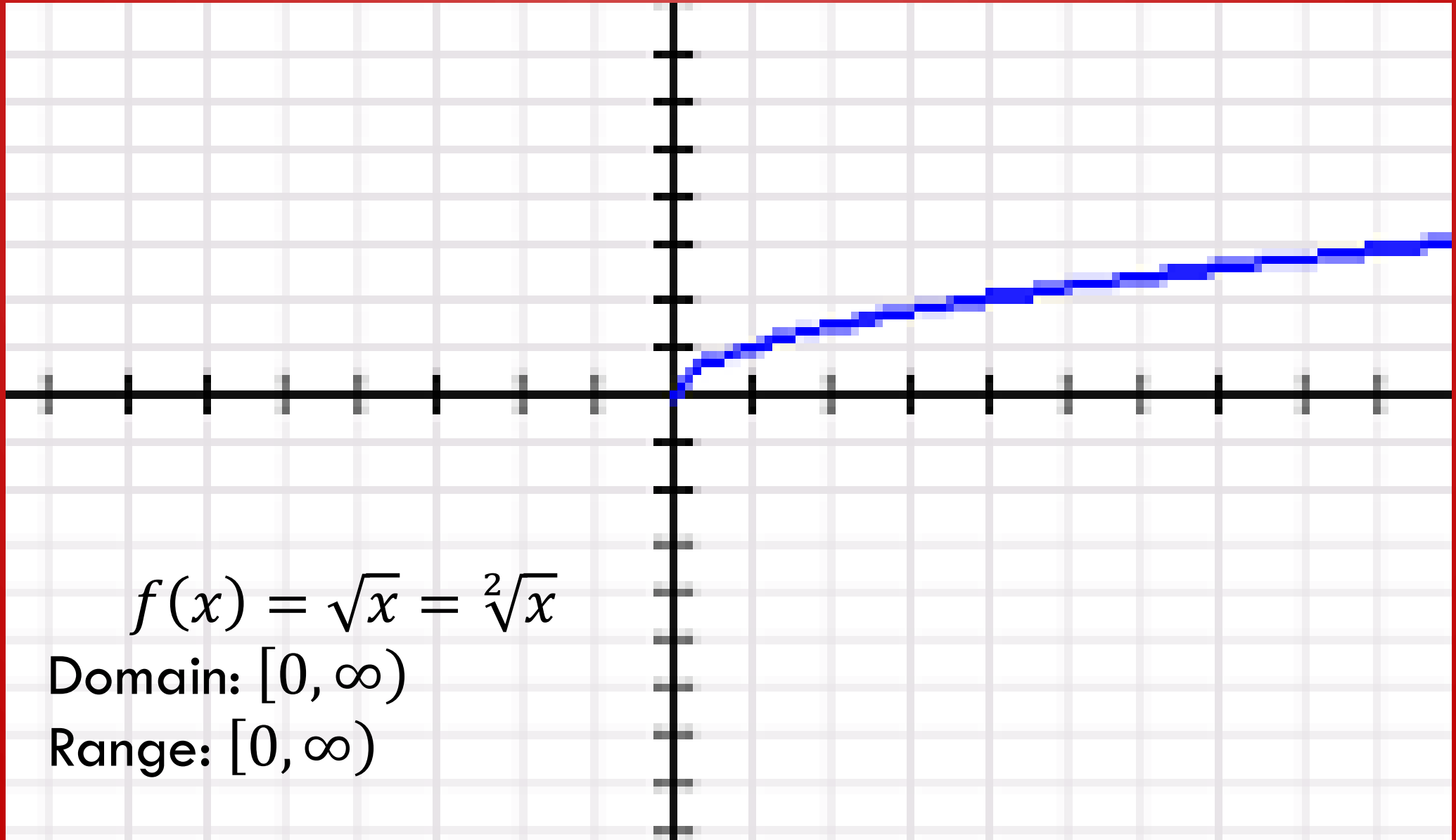
Horizontal Asymptote: $y = 0$



Quadratic Parent Function



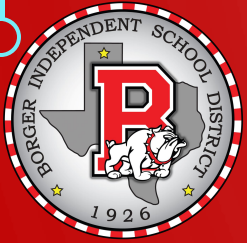
Square Root Parent Function



$$f(x) = \sqrt{x} = \sqrt[2]{x}$$

Domain: $[0, \infty)$

Range: $[0, \infty)$

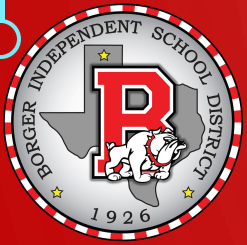
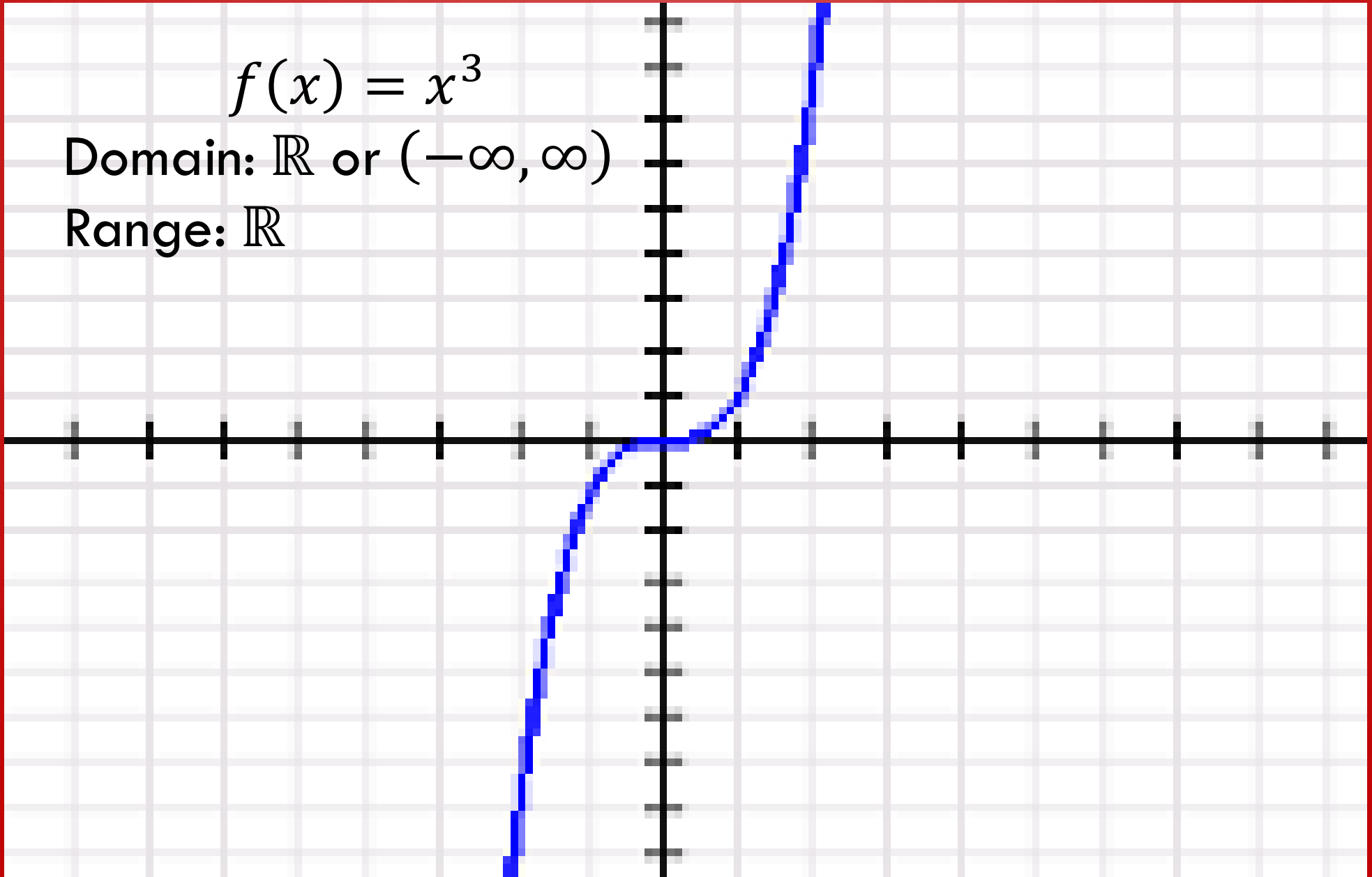


Cubic Parent Function

$$f(x) = x^3$$

Domain: \mathbb{R} or $(-\infty, \infty)$

Range: \mathbb{R}

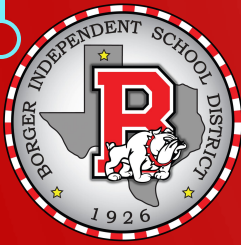
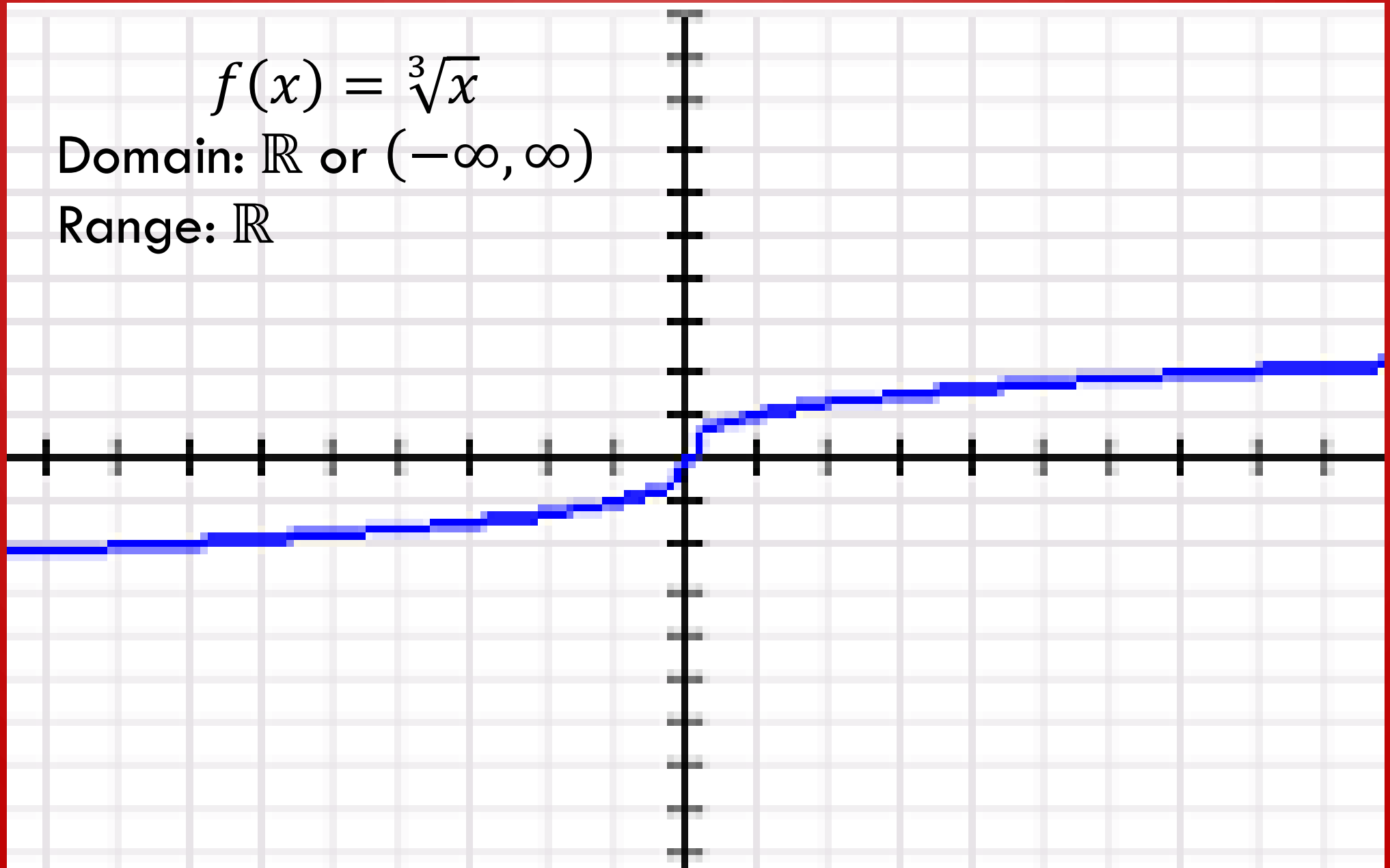


Cube Root Parent Function

$$f(x) = \sqrt[3]{x}$$

Domain: \mathbb{R} or $(-\infty, \infty)$

Range: \mathbb{R}

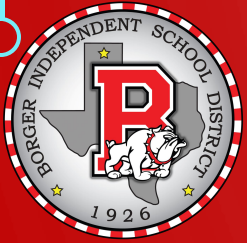
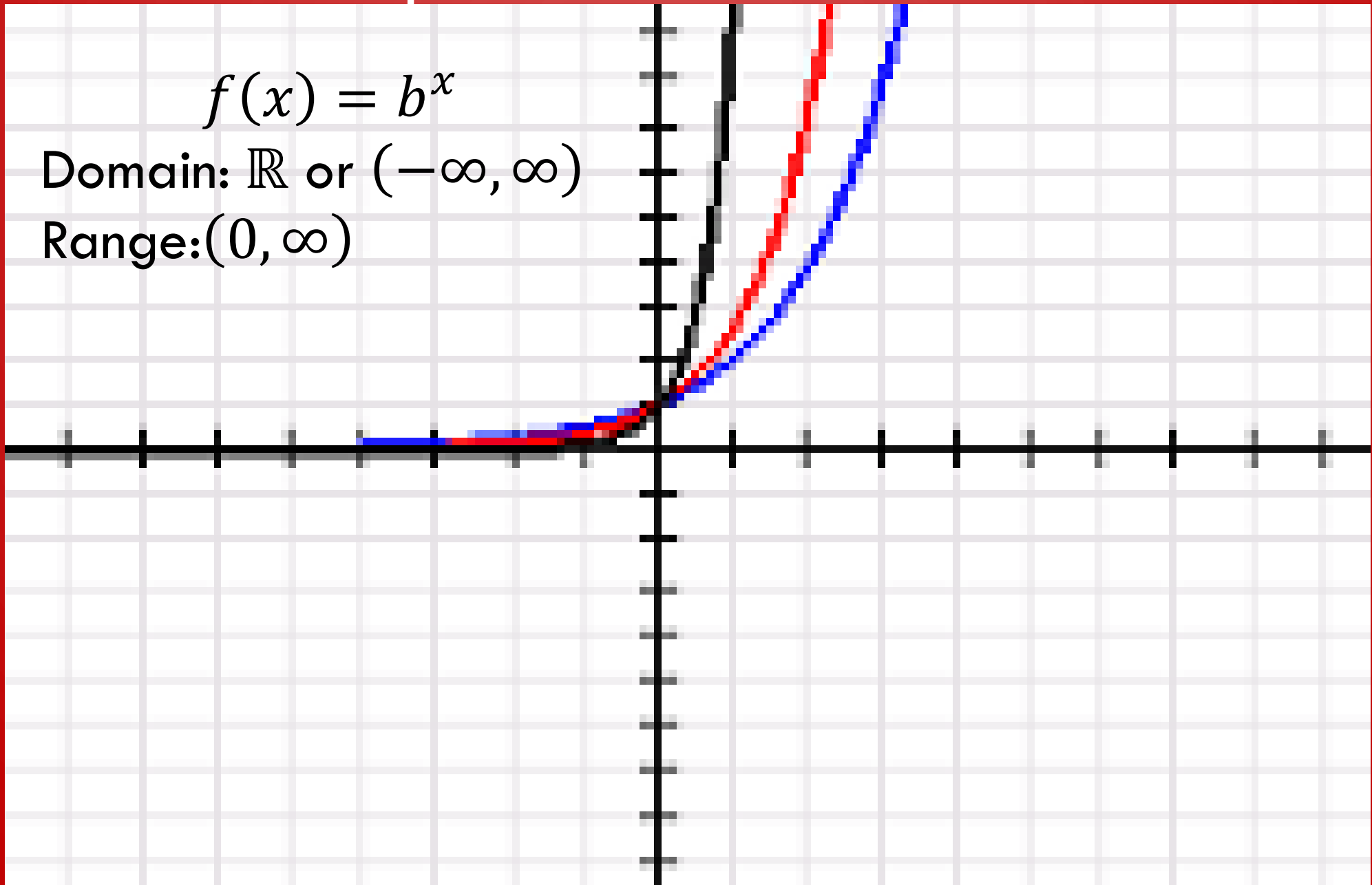


Exponential Parent Function

$$f(x) = b^x$$

Domain: \mathbb{R} or $(-\infty, \infty)$

Range: $(0, \infty)$

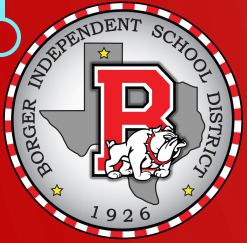
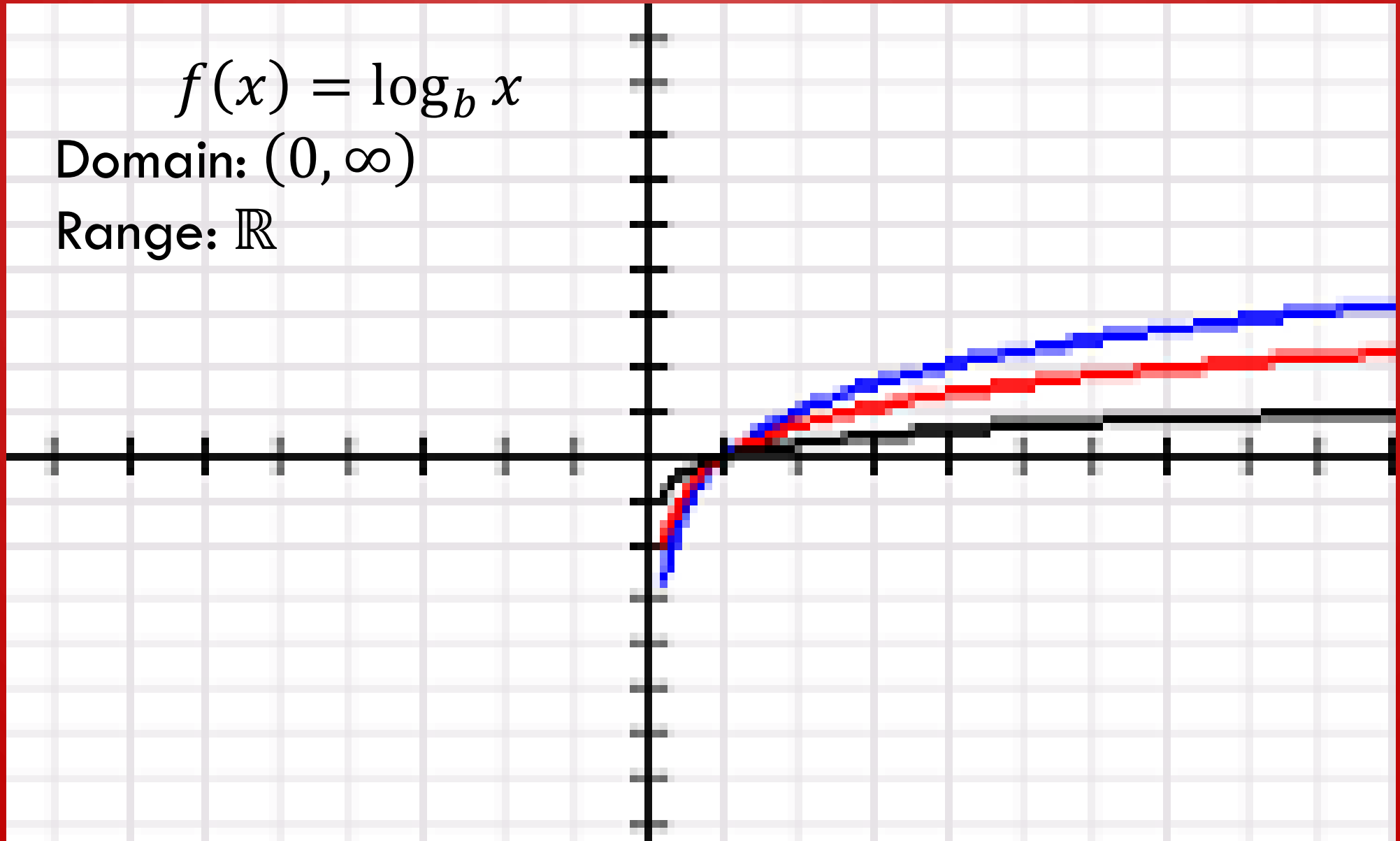


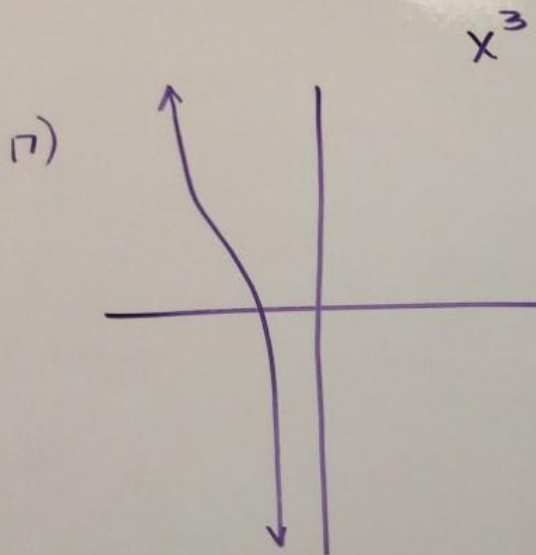
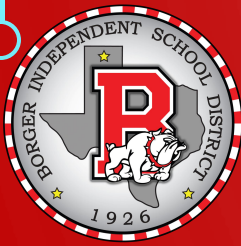
Logarithmic Parent Function

$$f(x) = \log_b x$$

Domain: $(0, \infty)$

Range: \mathbb{R}





$$-x^3$$
$$-(x+3)^3$$

~~$[-2, -\infty)$~~

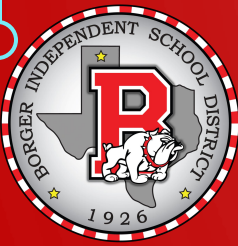
$(-\infty, -2]$

Proficiency Technology User - Students will use technology as a tool to research, develop, and complete goals and objectives. They will demonstrate knowledge of computers, internet, software applications, and the effective use of technology.

Contributing Citizen - Students will contribute energy, time, and talent to improve the welfare of themselves and others. They will display a sense of social responsibility and participate in the democratic process. They will exhibit fairness and integrity. (Please attach evidence of action, and take personal responsibility for their actions.)

1. How would you identify the audience?
a. Who?
b. What?
c. How?
d. When?
e. Where?

2. How would you identify the audience?
a. Who?
b. What?
c. How?
d. When?
e. Where?



EXPONENTIAL

$$f(x) = b^x$$

$$b \neq 1 \quad b > 0$$

$$b = 2, e, 10$$

$$2^x$$

$$e^x$$

$$10^x$$

$$\left(\frac{1}{512}\right)^x$$

$$D: \mathbb{R}$$

$$R: (0, \infty)$$

$$HA \quad y = 0$$



LOGARITHMIC

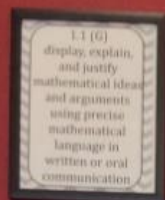
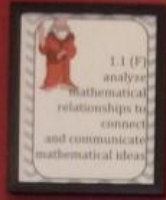
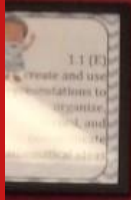
$$f(x) = \log_b x \quad D: (0, \infty)$$

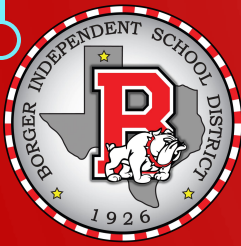
$$b \neq 1 \quad b > 0 \quad R: \mathbb{R}$$

$$b = 2, 10, e \quad VA \quad x = 0$$

$$\log_e x \equiv \ln x$$

$$\log_{10} x \equiv \log x$$





$$2^{x+5}$$

$$\log_2(x+5)$$

L5

$$10^x + 5$$

$$\log x + 5$$

U5

$$e^{x-5} - 5$$

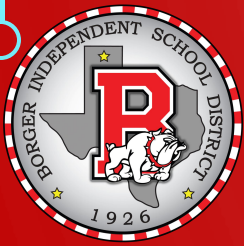
$$\ln(x-5) - 5$$

R5D5

$$-e^x$$

$$-\log_2 x$$

RAX



$$2(2^x) + 1$$

V52 U1

D: \mathbb{R}

R: $(1, \infty)$

HA $y=1$

$$-\log_2(x-1) + 2$$

RAX

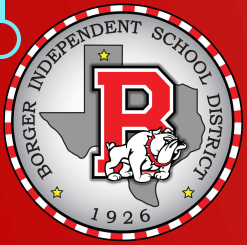
D: $(1, \infty)$

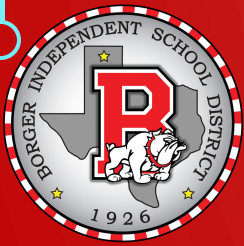
R1

R: \mathbb{R}

U2

VA: $x=1$





$$-2^{x+3} - 5$$

$\mathbb{R} \times \mathbb{R}$

$D: \mathbb{R}$

$L: 3$

$D: \mathbb{R}$

$R: (-\infty, -5)$

$HA: y = -5$