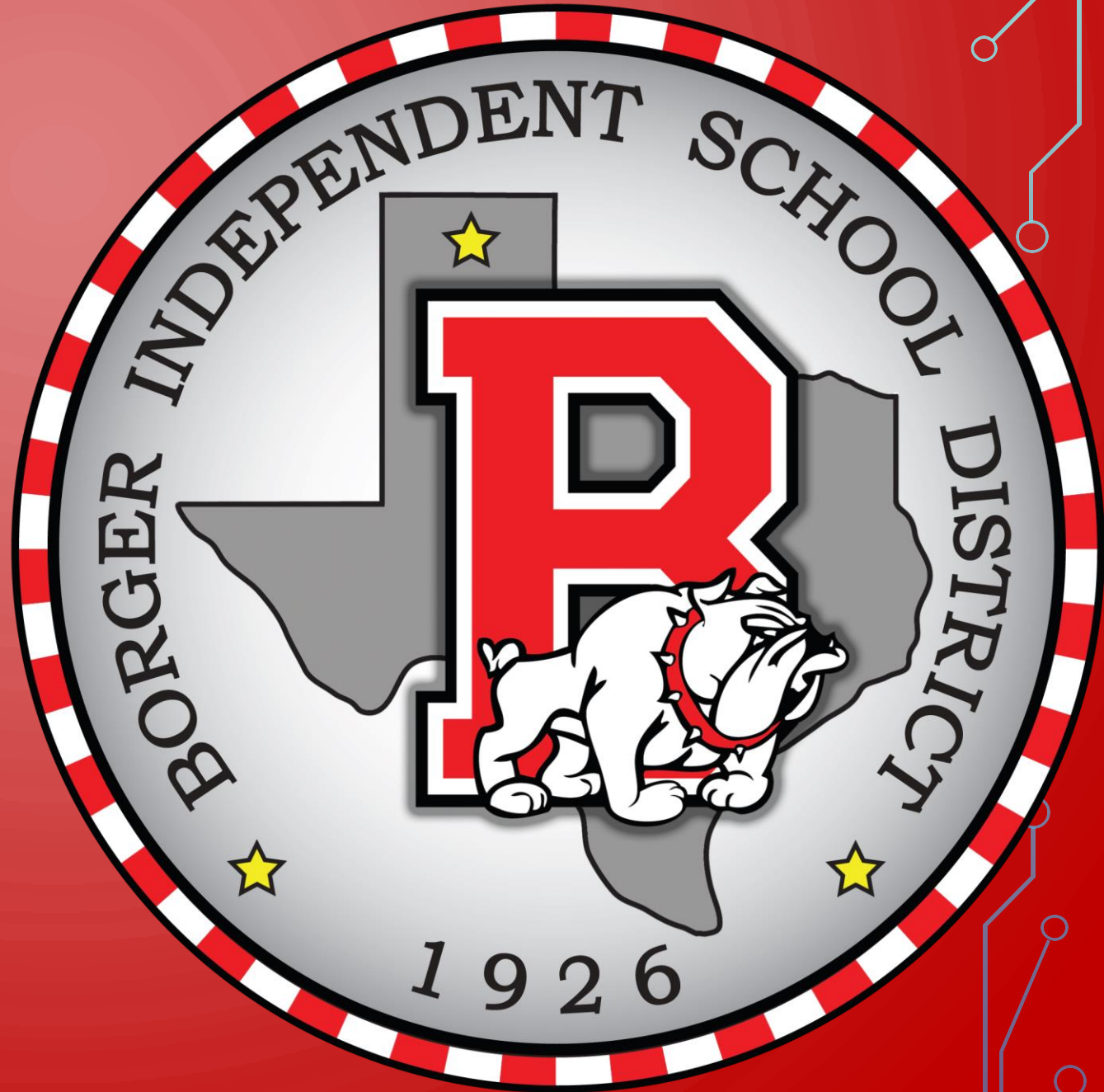


# BOARD NOTES

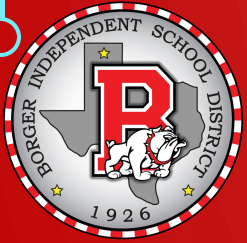
9 OCTOBER 2019



2A.2 (B) graph and write the inverse of a function using notation such as  $f^{-1}(x)$ ;

2A.2 (C) describe and analyze the relationship between a function and its inverse (quadratic and square root, logarithmic and exponential), including the restriction(s) on domain, which will restrict its range;

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.



We will be able to determine the inverse of an equation without graphing.



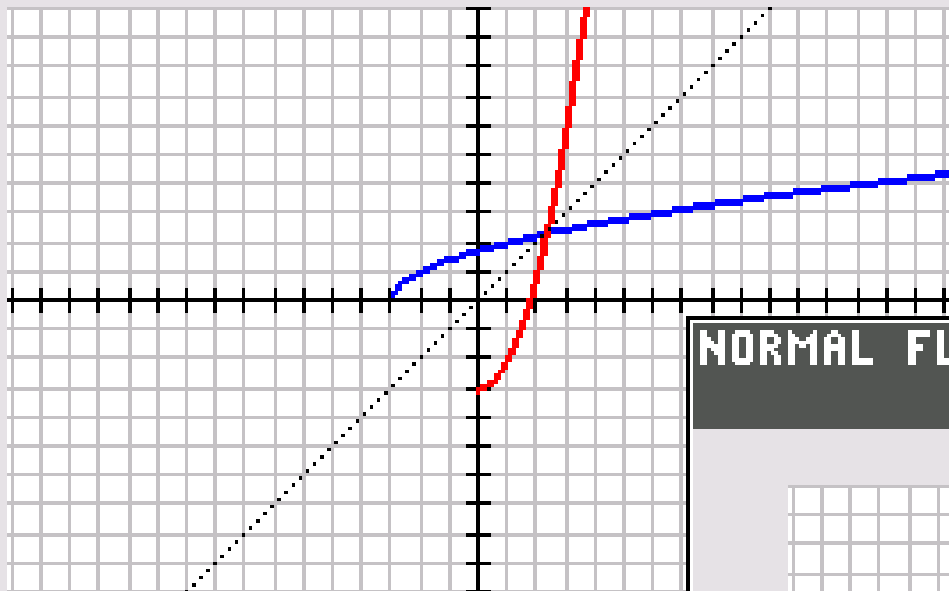
WHAT WE NEED:

- TI – 84
- VLT
- HLT

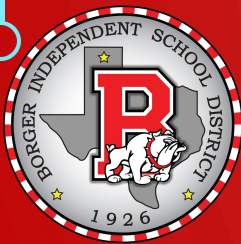
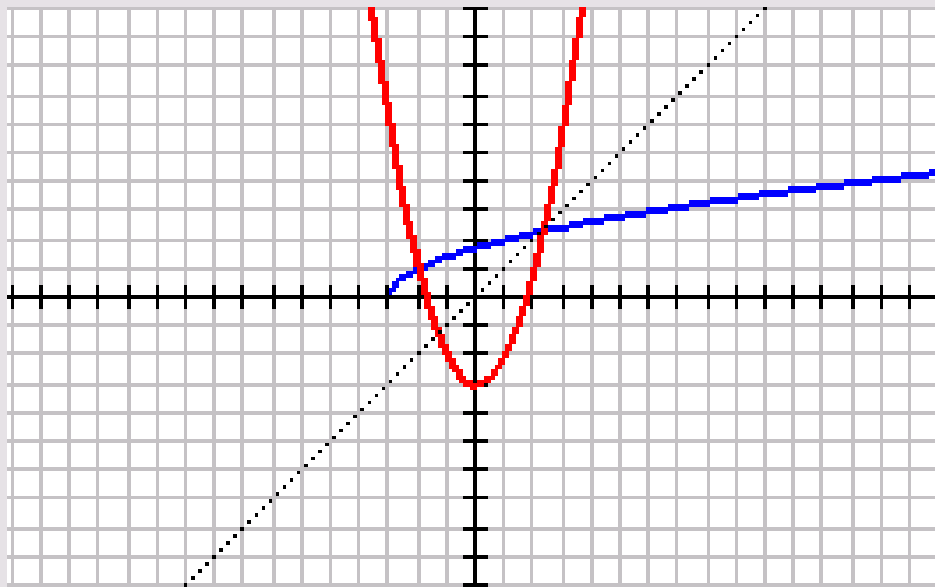
I WILL BE ABLE TO COMPLETE MY HOMEWORK GIVEN THE

- Equation
  - Change  $f(x)$  to  $y$
  - Swap  $x$  and  $y$
  - Solve for  $y$

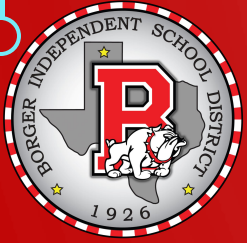
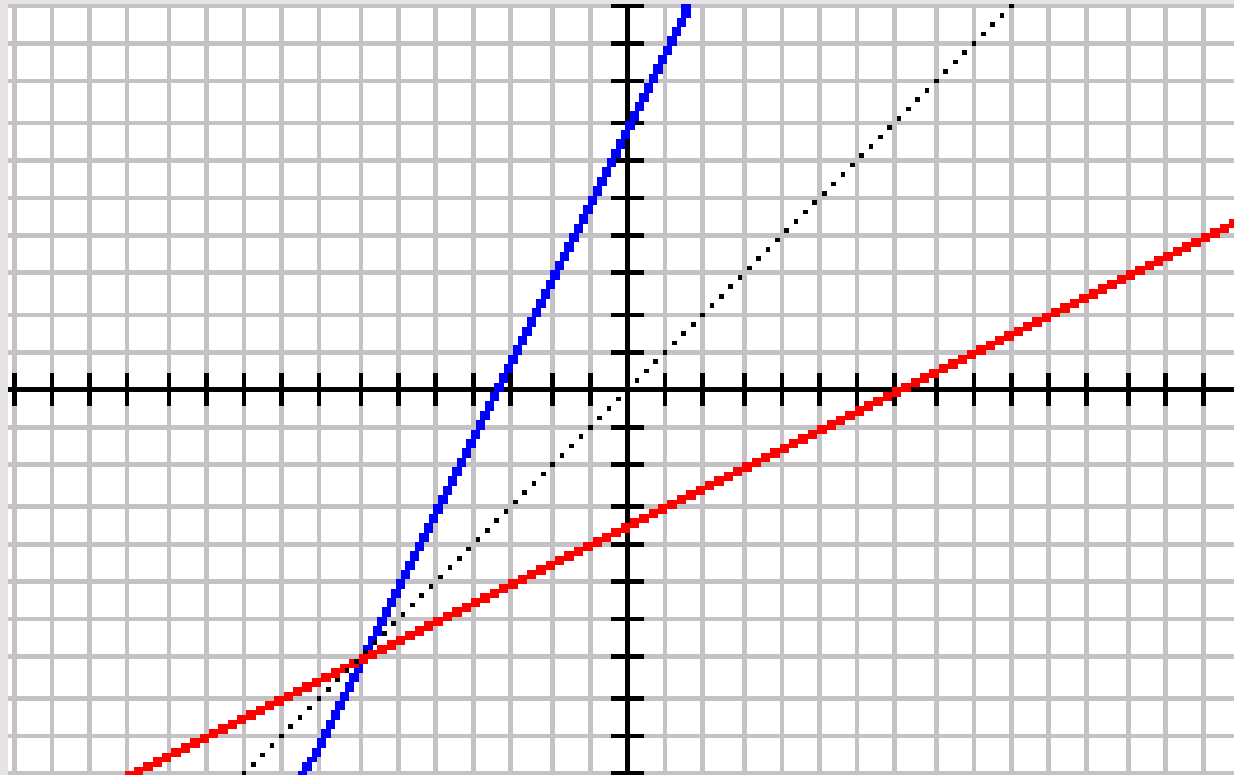
NORMAL FLOAT AUTO REAL RADIAN MP



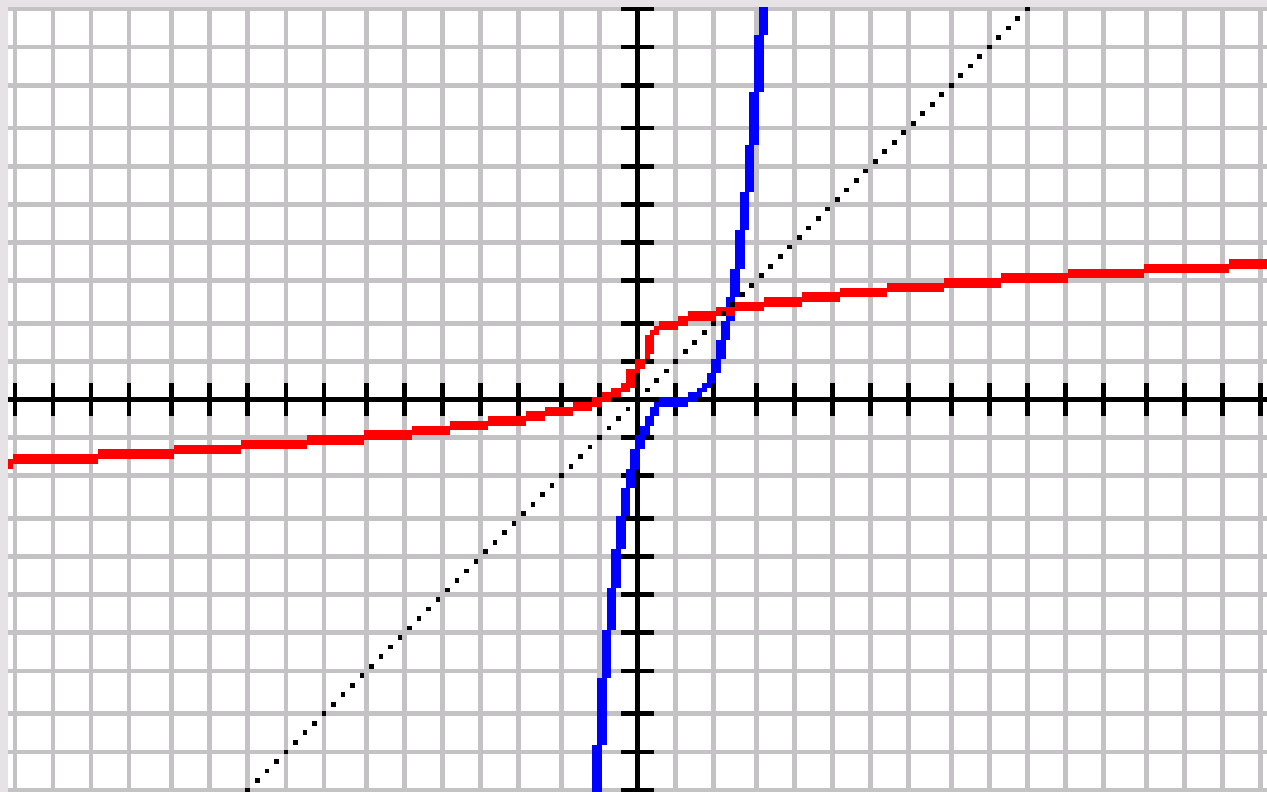
NORMAL FLOAT AUTO REAL RADIAN MP



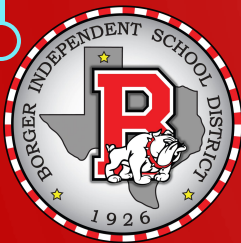
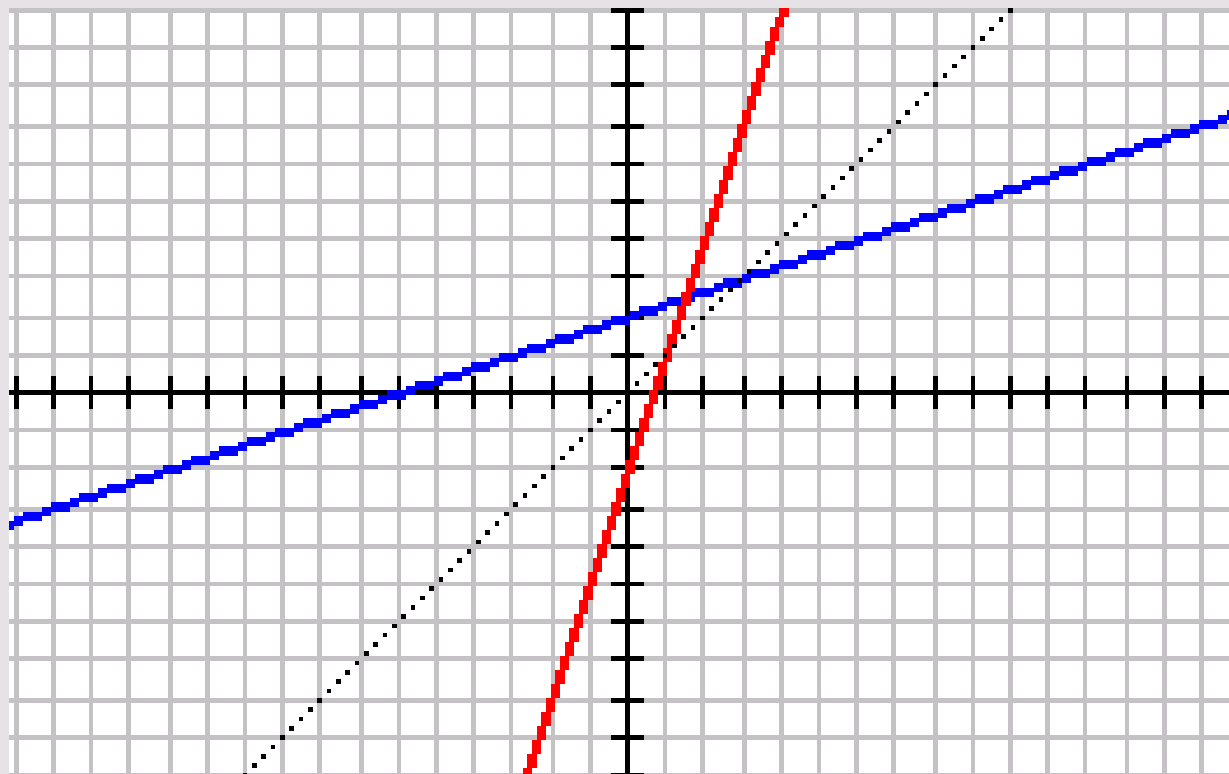
NORMAL FLOAT AUTO REAL RADIANT MP



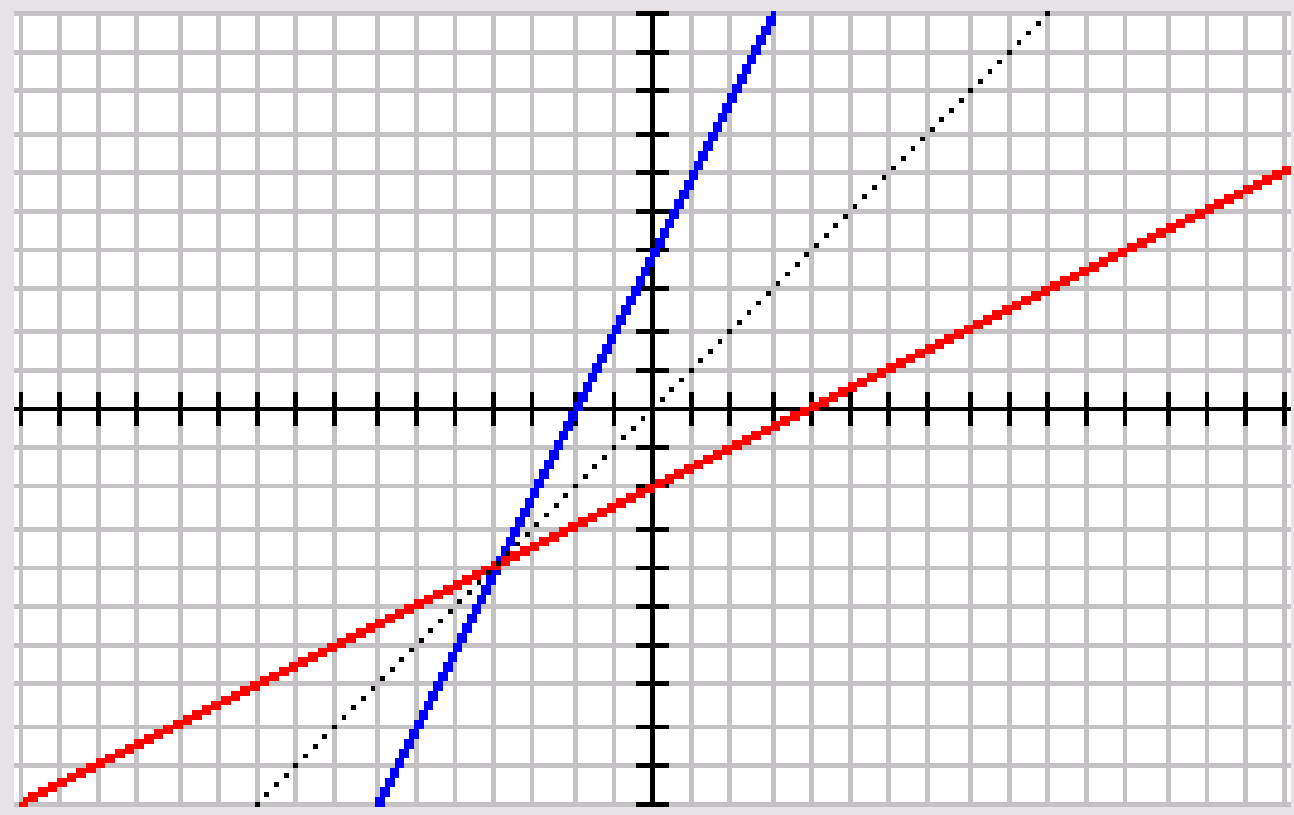
NORMAL FLOAT AUTO REAL RADIAN MP 



NORMAL FLOAT AUTO REAL RADIAN MP

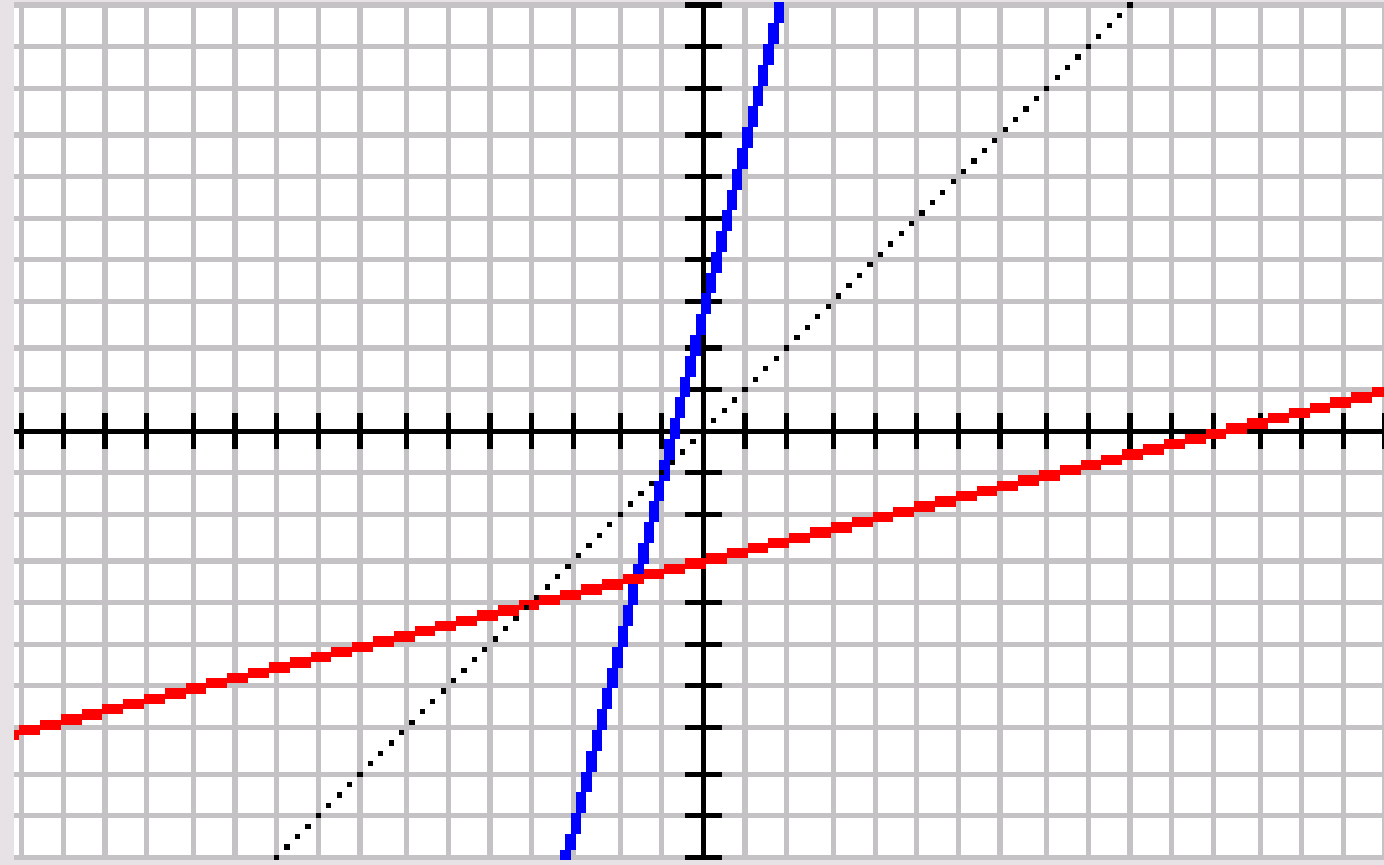


NORMAL FLOAT AUTO REAL RADIAN MP

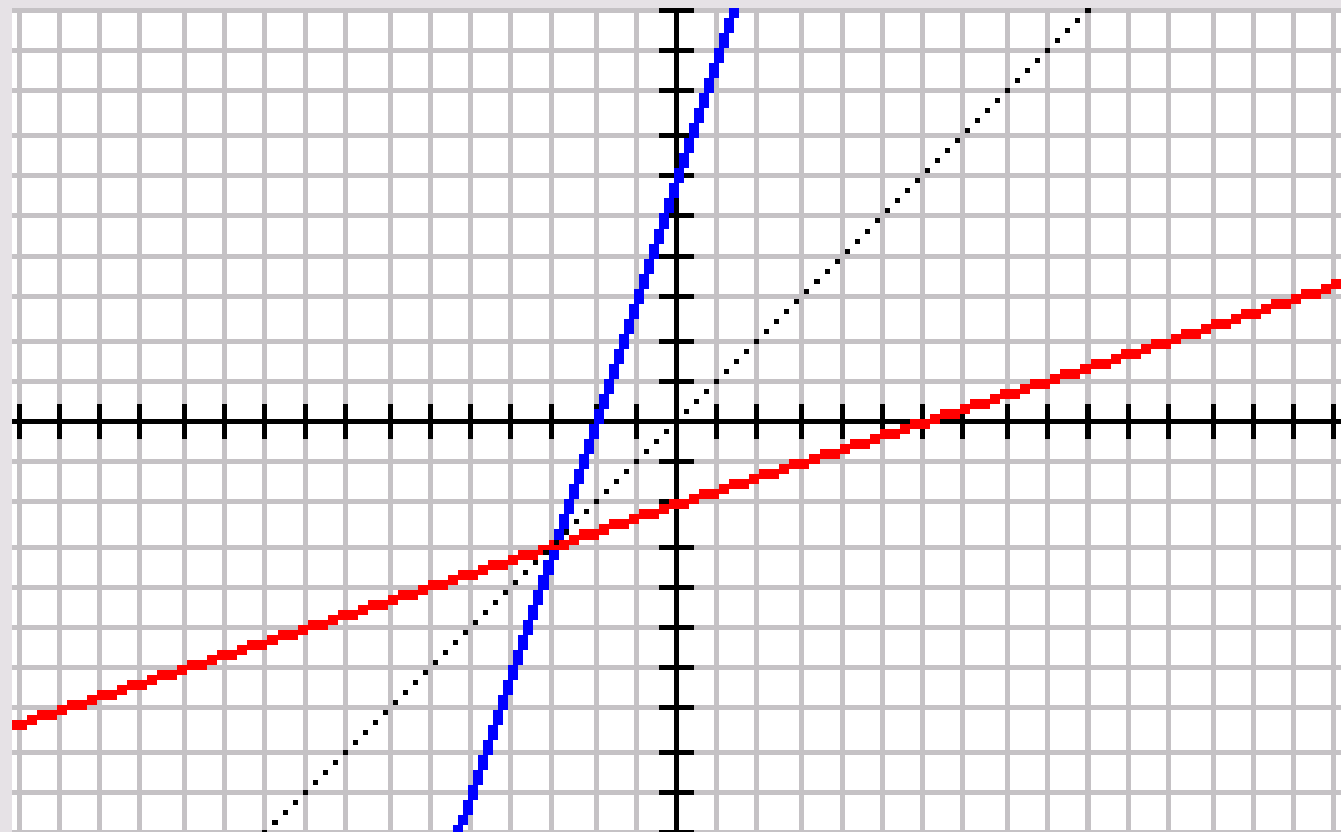


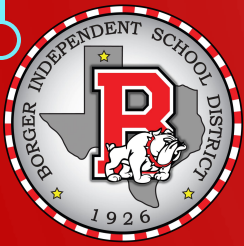


NORMAL FLOAT AUTO REAL RADIAN MP



NORMAL FLOAT AUTO REAL RADIANT MP





1.1 (E)  
write and use  
notations to  
organize  
record, and  
communicate  
mathematical ideas

1.1 (F)  
analyze  
mathematical  
relationships to  
connect  
and communicate  
mathematical ideas

1.1 (G)  
display, explain,  
and justify  
mathematical ideas  
and arguments  
using precise  
mathematical  
language in  
written or oral  
communication



$$f(x) = 2x + 7$$

x D:  $\mathbb{R}$

y R:  $\mathbb{R}$

$$y = 2x + 7$$

$$x = 2y + 7$$

$$x - 7 = 2y$$

$$y = \frac{1}{2}x - \frac{7}{2}$$

$$f^{-1}(x) = \frac{1}{2}x - \frac{7}{2}$$

D:  $\mathbb{R}$   $\mathbb{R}$

R:  $\mathbb{R}$   $\mathbb{R}$

① \* INVERSES INTERSECT  
THE ORG FUNCTION  
ON THE LINE  $y=x$

$$f(x) = x^2$$

x D:  $\mathbb{R}$   $[0, \infty)$

y R:  $[0, \infty)$  HAS  
BEEN  
RESTRICTED

$$y = x^2$$

$$x = y^2$$

$$y = \pm\sqrt{x}$$

$$f^{-1}(x) = \sqrt{x}$$

D:  $[0, \infty)$   $[0, \infty)$

R:  $[0, \infty)$   $\mathbb{R}$



WS 2-1-3  
ODDS

WS 2-1-4  
EVEN

$$f(x) = \sqrt{x+3}$$

$$\begin{cases} x \text{ D: } [-3, \infty) \\ y \text{ R: } [0, \infty) \end{cases}$$

WE USE THE  
SMALLER OF  
THE TWO

$$\begin{cases} \text{D: } [0, \infty) \quad \cancel{\text{R}} \\ \text{R: } [-3, \infty) \quad [-3, \infty) \end{cases}$$

$$y = \sqrt{x+3}$$

$$x = \sqrt{y+3}$$

$$x^2 = y+3$$

$$y = x^2 - 3$$

$$f^{-1}(x) = x^2 - 3$$

Cooperative Team Member - Students will use effective listening and group skills to receive constructive and cooperative interpersonal relationships with others in order to achieve group objectives. They will respect and encourage the contributions of diverse cultures.

Global Thinker - Students will have basic knowledge of politics, world issues, foreign affairs, and geography. They will be aware of current events and be able to analyze and make informed decisions on issues affecting the national and international scene.

Risk taker with Entrepreneurial Spirit - Students will be able to think critically, analyze situations, give insight, and take calculated risks to address goals and objectives. They will be able to assess the consequences to find economic opportunities and have the confidence to take and act independently.

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

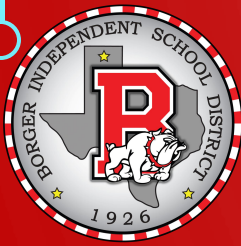
Contributing Citizen - Students will contribute positively to the school and community through leadership and service. They will display a sense of responsibility and accountability for their actions.

Table 1

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120

Table 2

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120



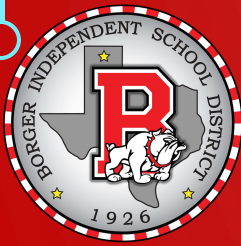
•  $f(x) = \frac{1}{3}x + 2$       •  $g(x) = 3x - 2$

\* GRAPHICALLY  
NOT INVERSES

$$\begin{aligned}(f \circ g)(x) &= f(g(x)) = \\ &= \frac{1}{3}(3x - 2) + 2 \\ &= x - \frac{2}{3} + 2 \\ &= x + \frac{4}{3}\end{aligned}$$

\* • f

$$\begin{aligned}(g \circ f)(x) &= g(f(x)) = x \\ &= 3\left(\frac{1}{3}x + 2\right) - 2 \\ &= x + 6 - 2 \\ &= x + 4\end{aligned}$$



- $f(x) = 2x + 4$
- $g(x) = \frac{1}{2}x - 2$

$$\begin{aligned} 1) (f \circ g)(x) &= f(g(x)) \\ &= 2\left(\frac{1}{2}x - 2\right) + 4 \\ &= x - 4 + 4 \\ &= x \end{aligned}$$

$$\text{B/C } f \circ g = x$$

$$\begin{aligned} 2) (g \circ f)(x) &= g(f(x)) \\ &= \frac{1}{2}(2x + 4) - 2 \\ &= x + 2 - 2 \\ &= x \end{aligned}$$

$$g(x) = f^{-1}(x)$$