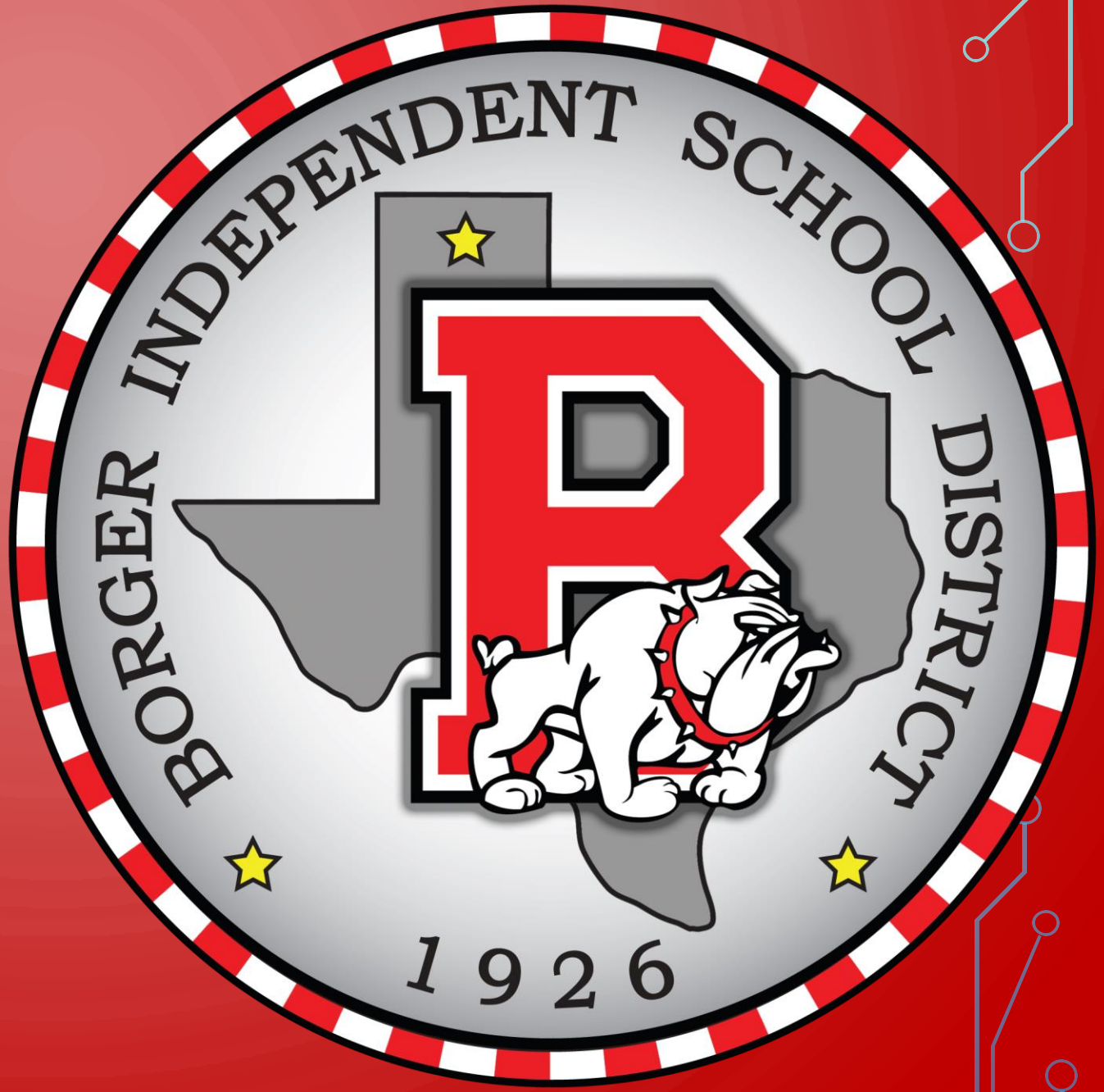
BOARD NOTES

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.

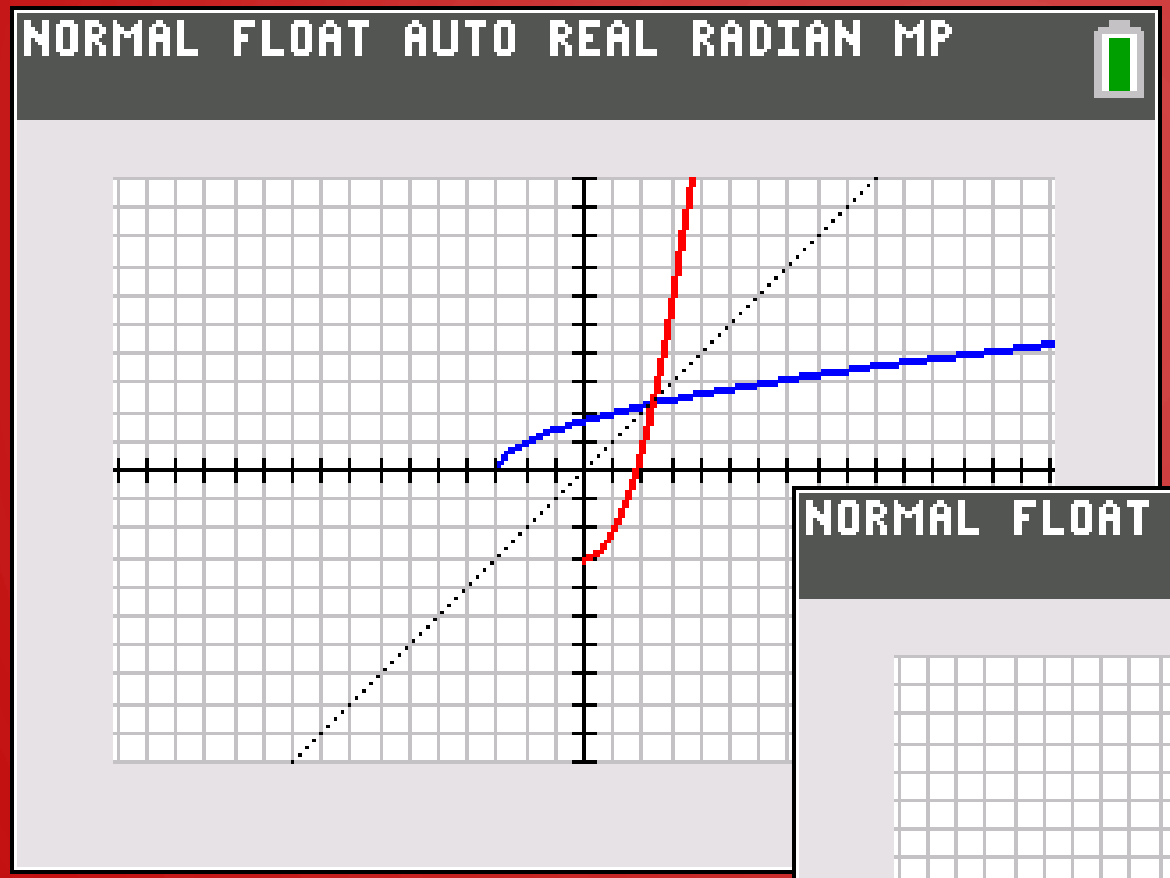
We will be able to determine the inverse of an equation without graphing.

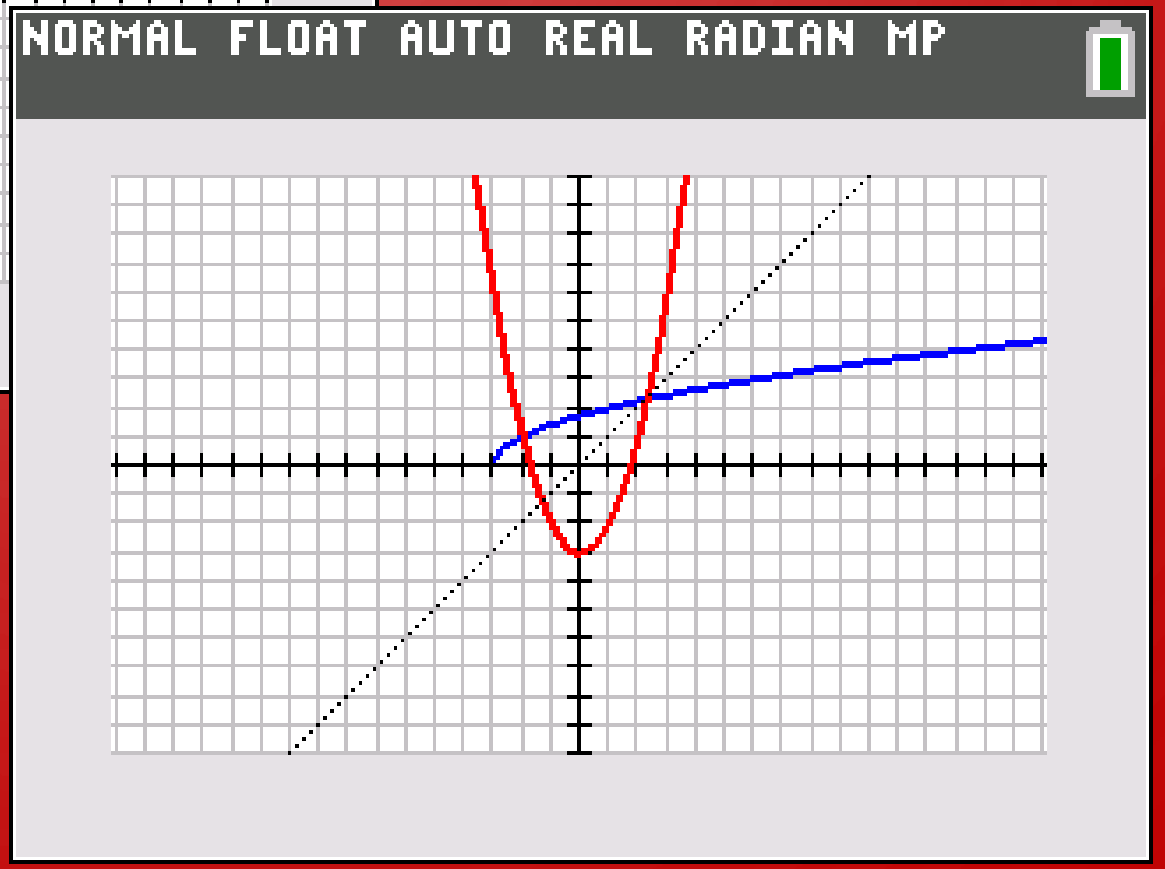
WHAT WE NEED:

- 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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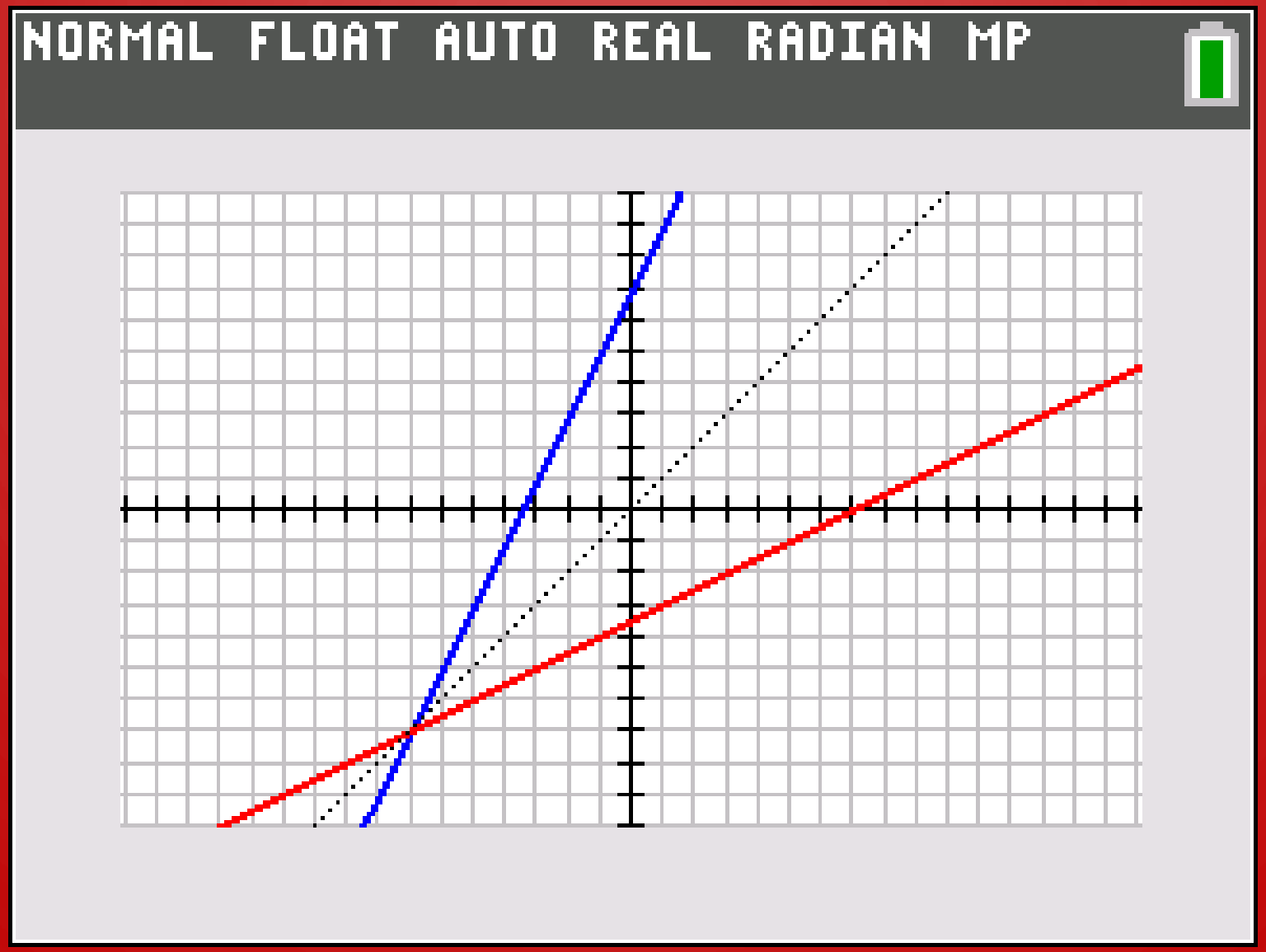
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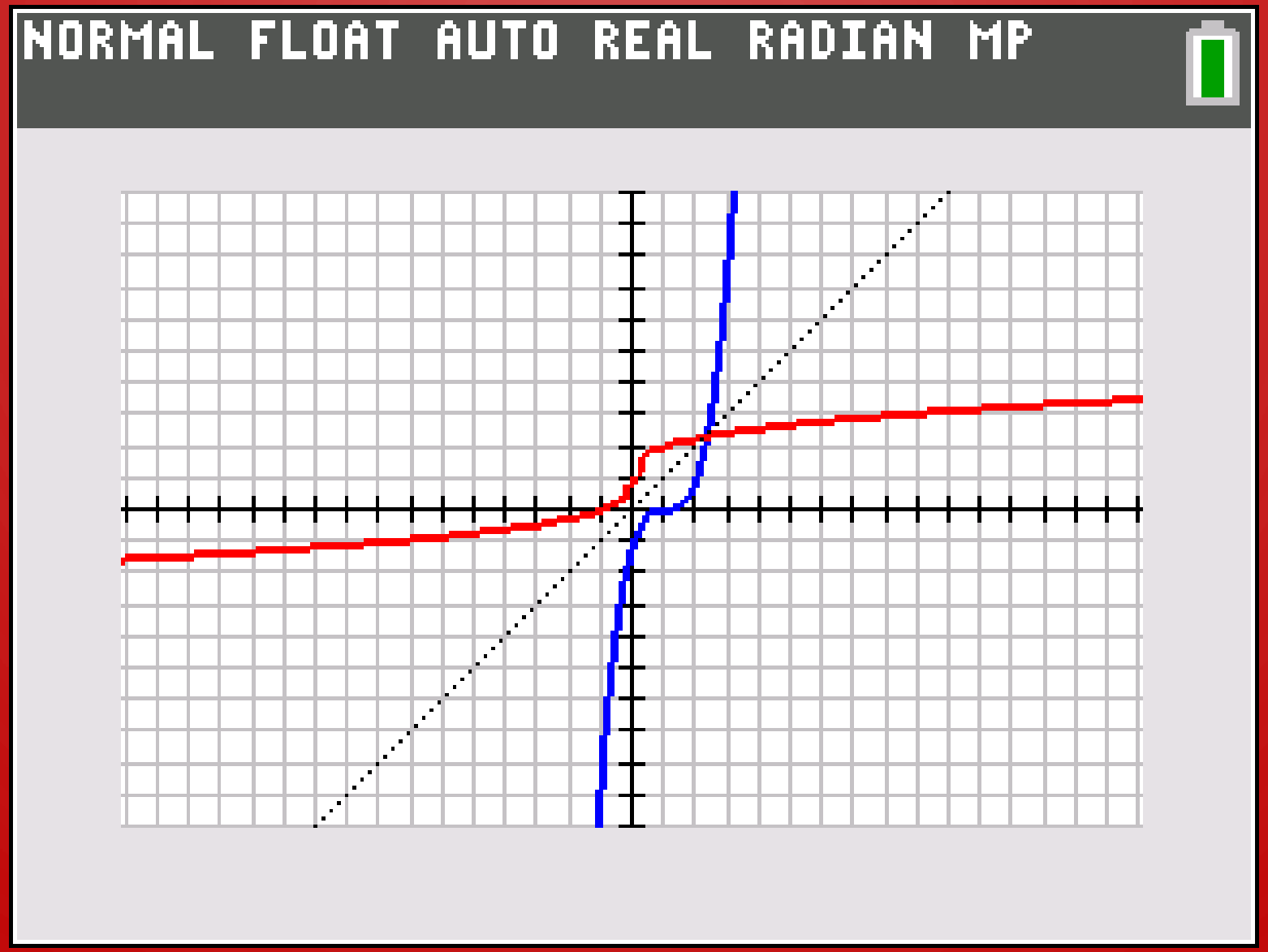
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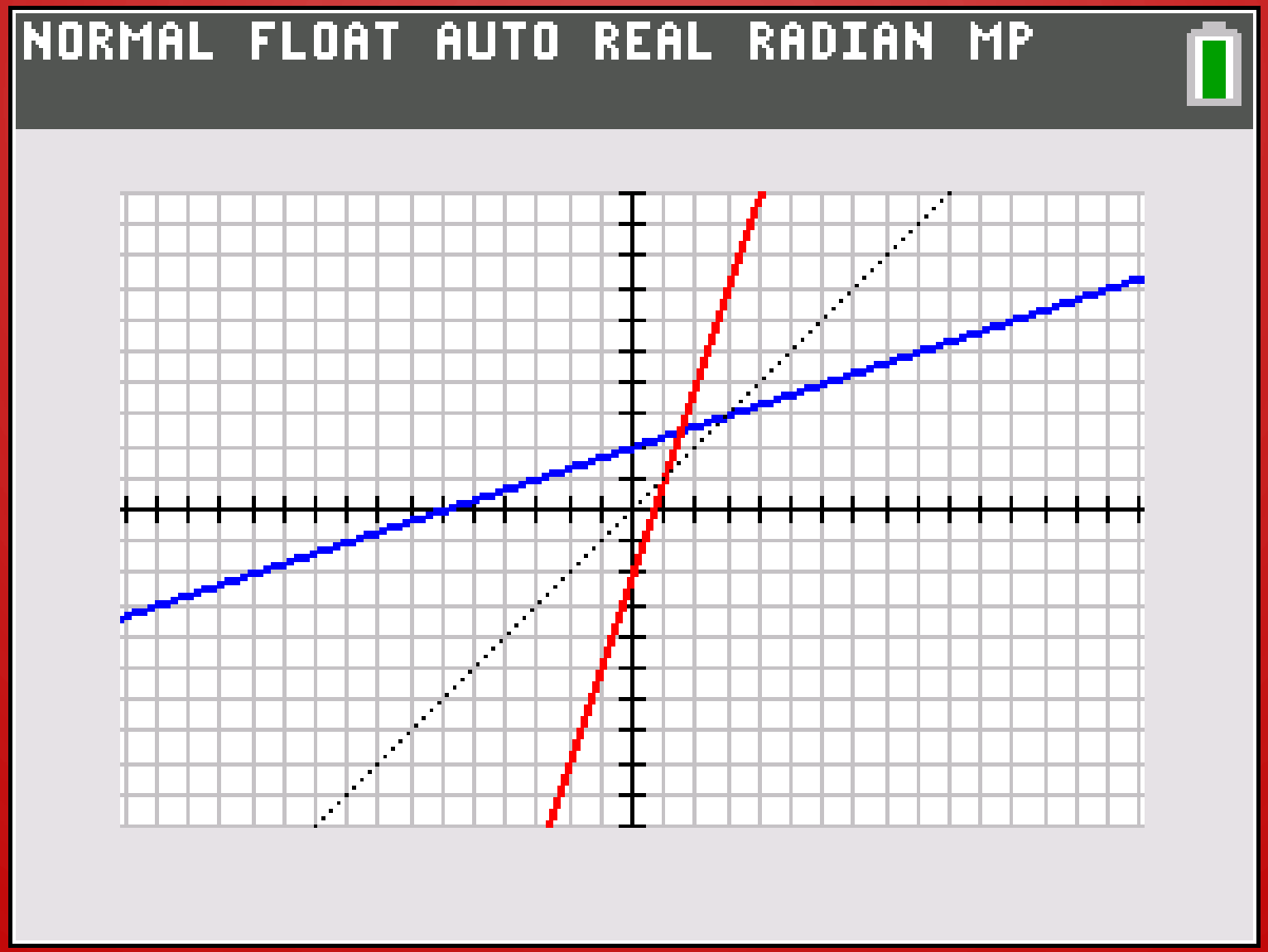
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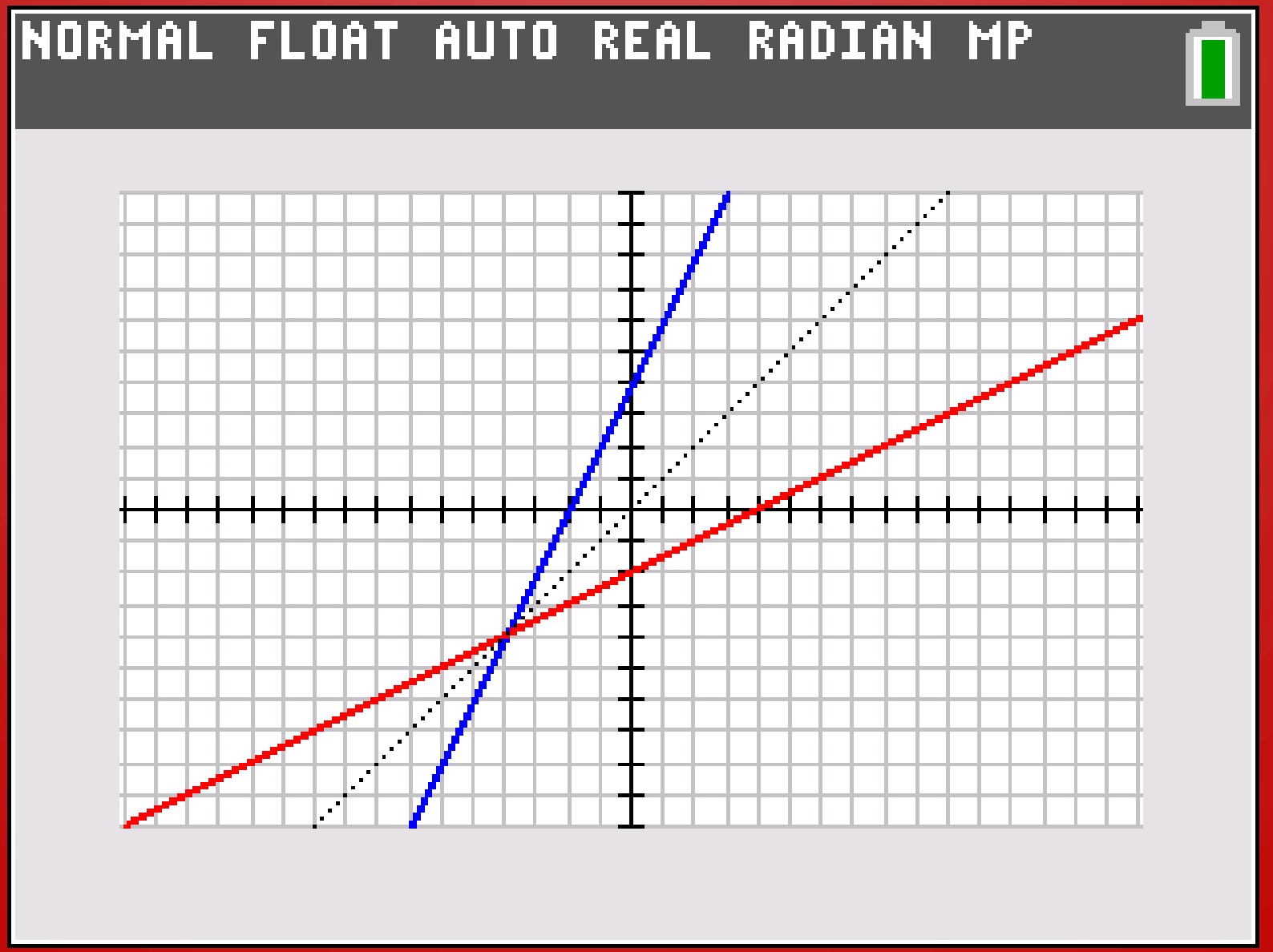
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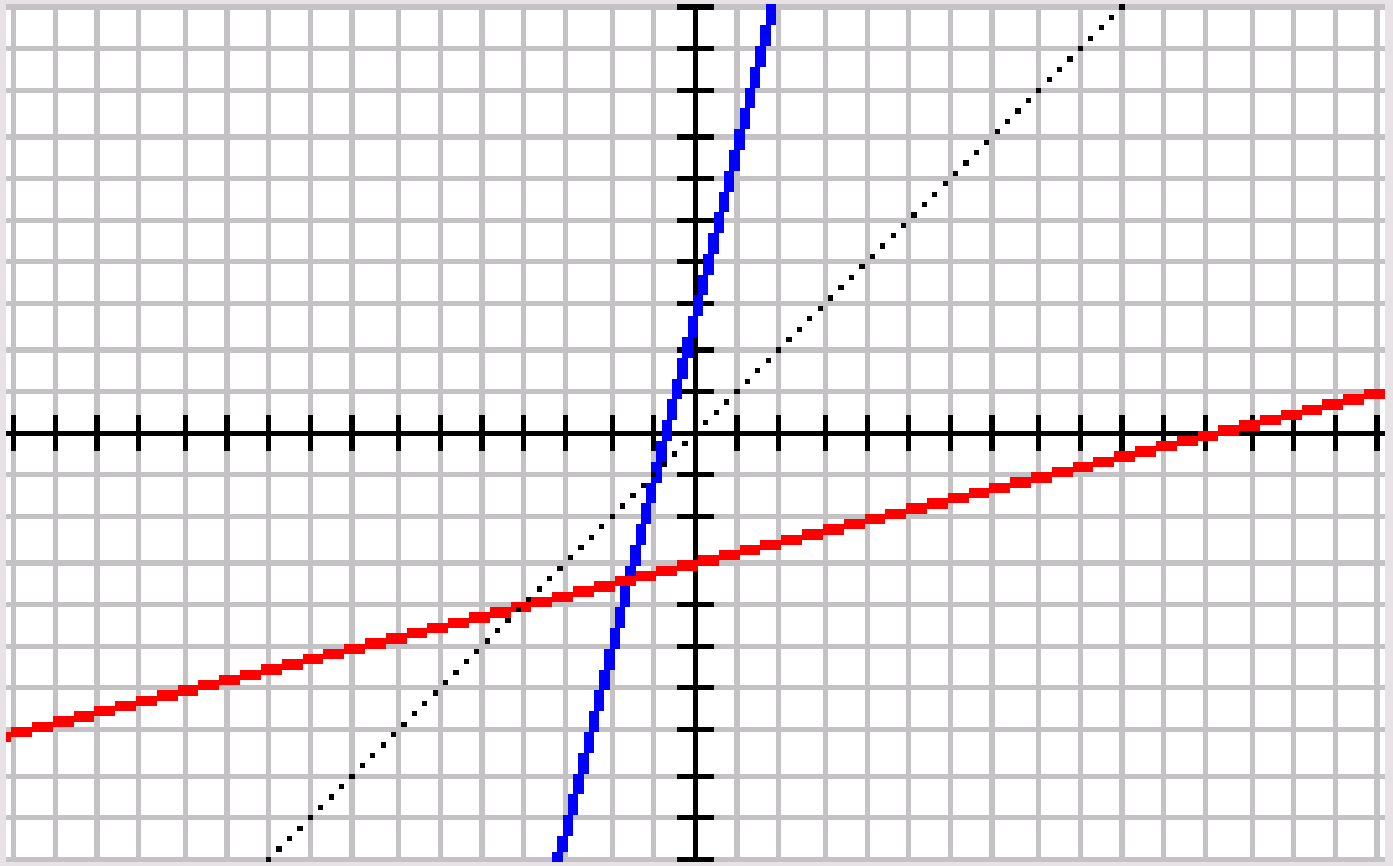

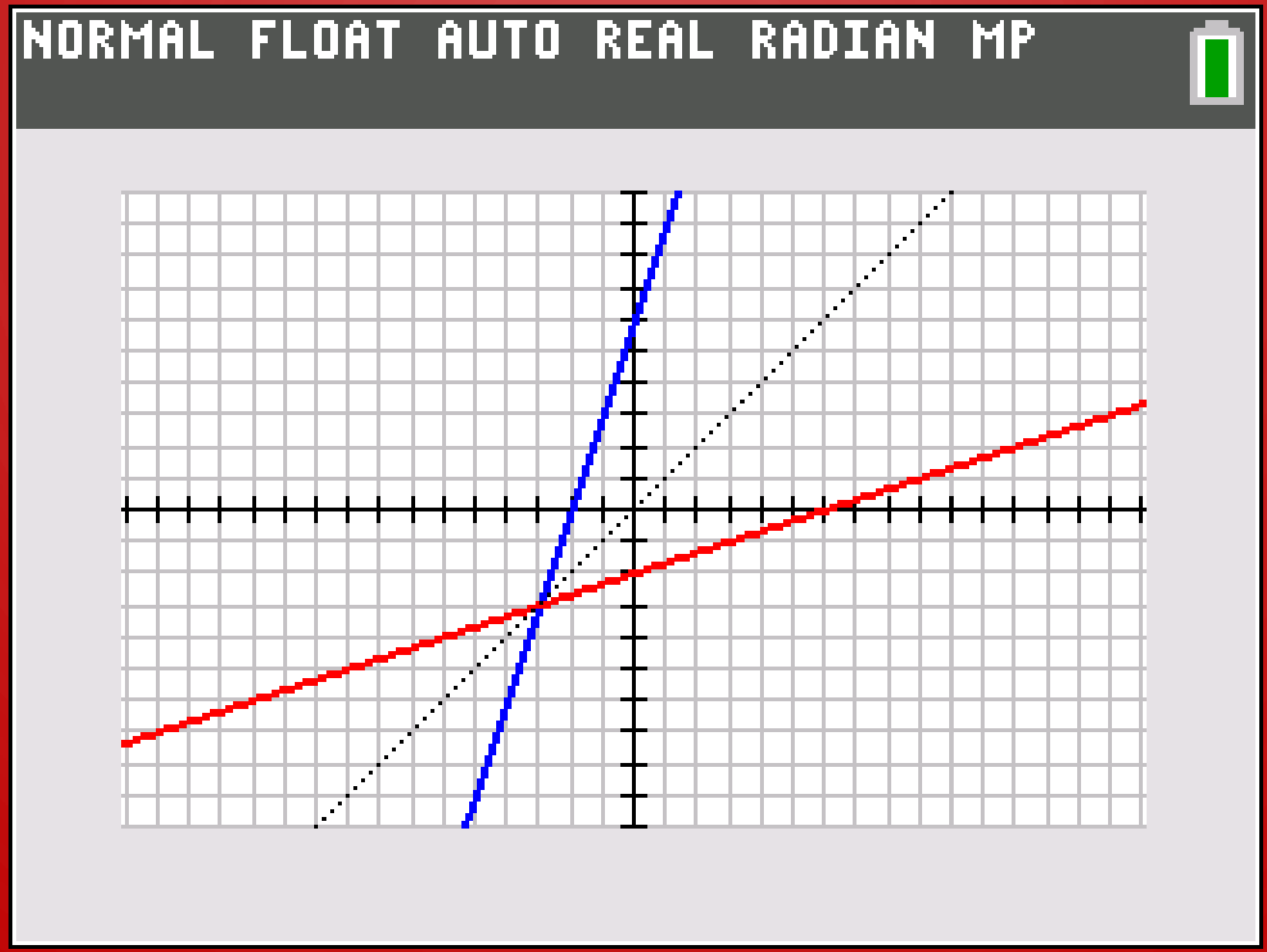
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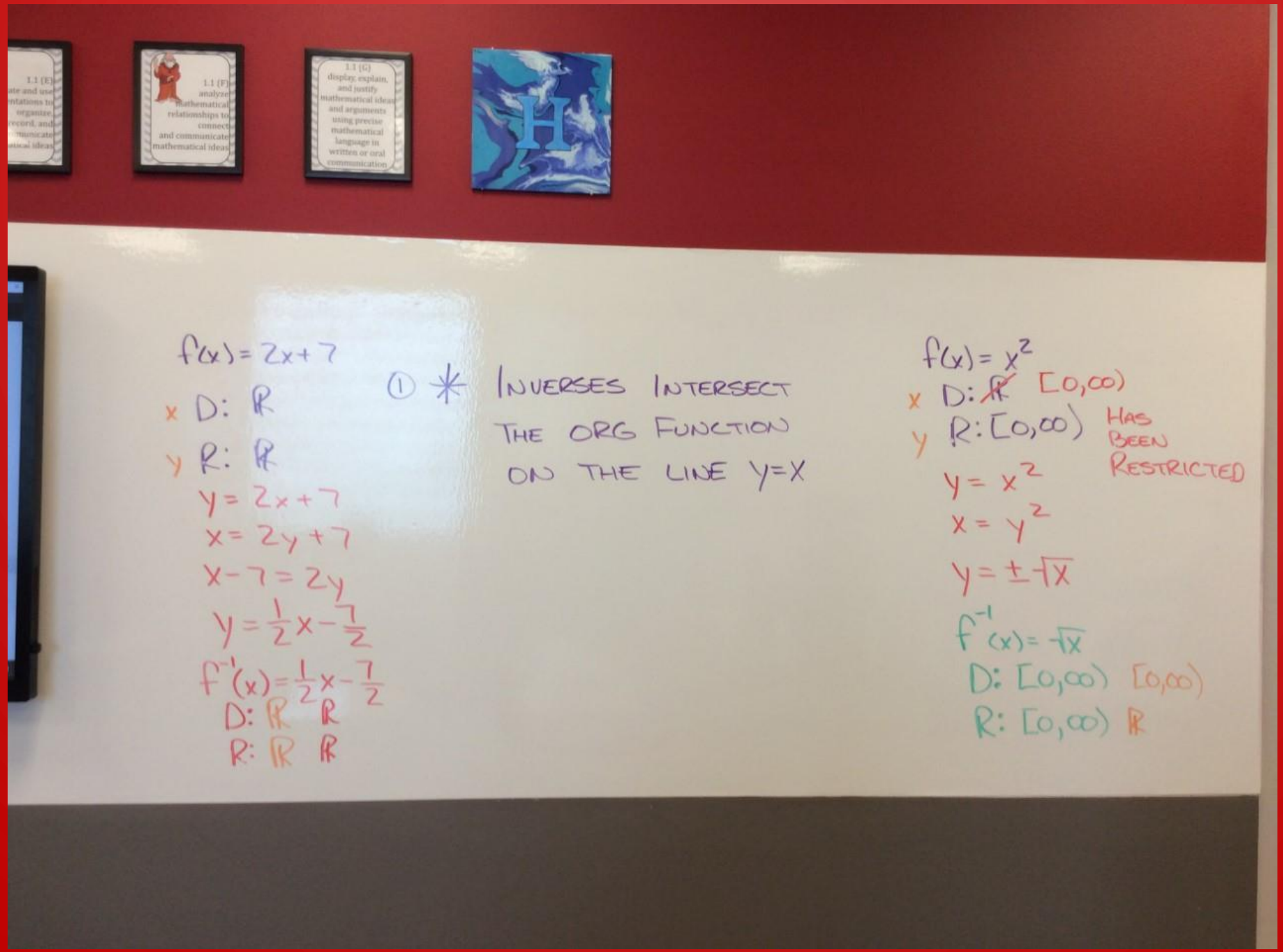
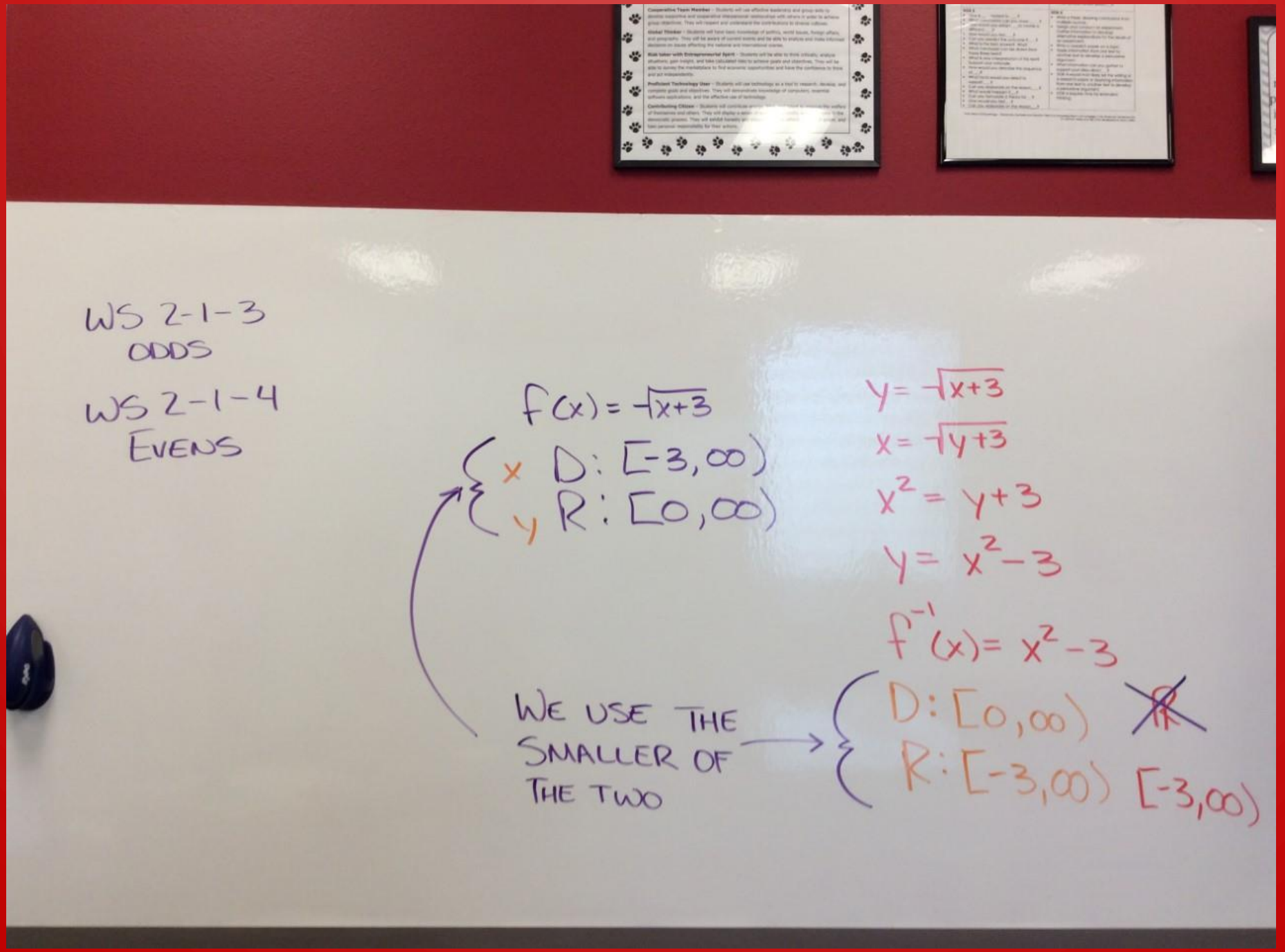
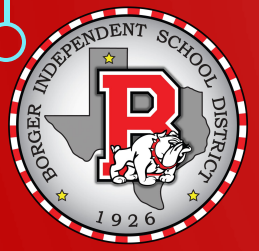

1.1 (F) analyze mathematical relationships to connect and communicate mathematical ideas
1.1 (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication
H
f(x) = 2x + 7
D: ℝ
R: ℝ
y = 2x + 7
x = 2y + 7
x − 7 = 2y
y = ½x − 7/2
f⁻¹(x) = ½x − 7/2
D: ℝ ℝ
R: ℝ ℝ
① * INVERSES INTERSECT THE ORG FUNCTION ON THE LINE Y=X
f(x) = x²
D: ℝ [0,∞)
R: [0,∞) HAS BEEN RESTRICTED
y = x²
x = y²
y = ±√x
f⁻¹(x) = √x
D: [0,∞) [0,∞)
R: [0,∞) ℝ


WS 2-1-3
ODDS
WS 2-1-4
EVENS
$f(x) = \sqrt{x+3}$
x D: [-3, ∞)
y R: [0, ∞)
$y = \sqrt{x+3}$
$x = \sqrt{y+3}$
$x^2 = y+3$
$y = x^2 - 3$
$f^{-1}(x) = x^2 - 3$
WE USE THE SMALLER OF THE TWO
D: [0, ∞)
R: [-3, ∞)
[-3, ∞)



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

* Graphically

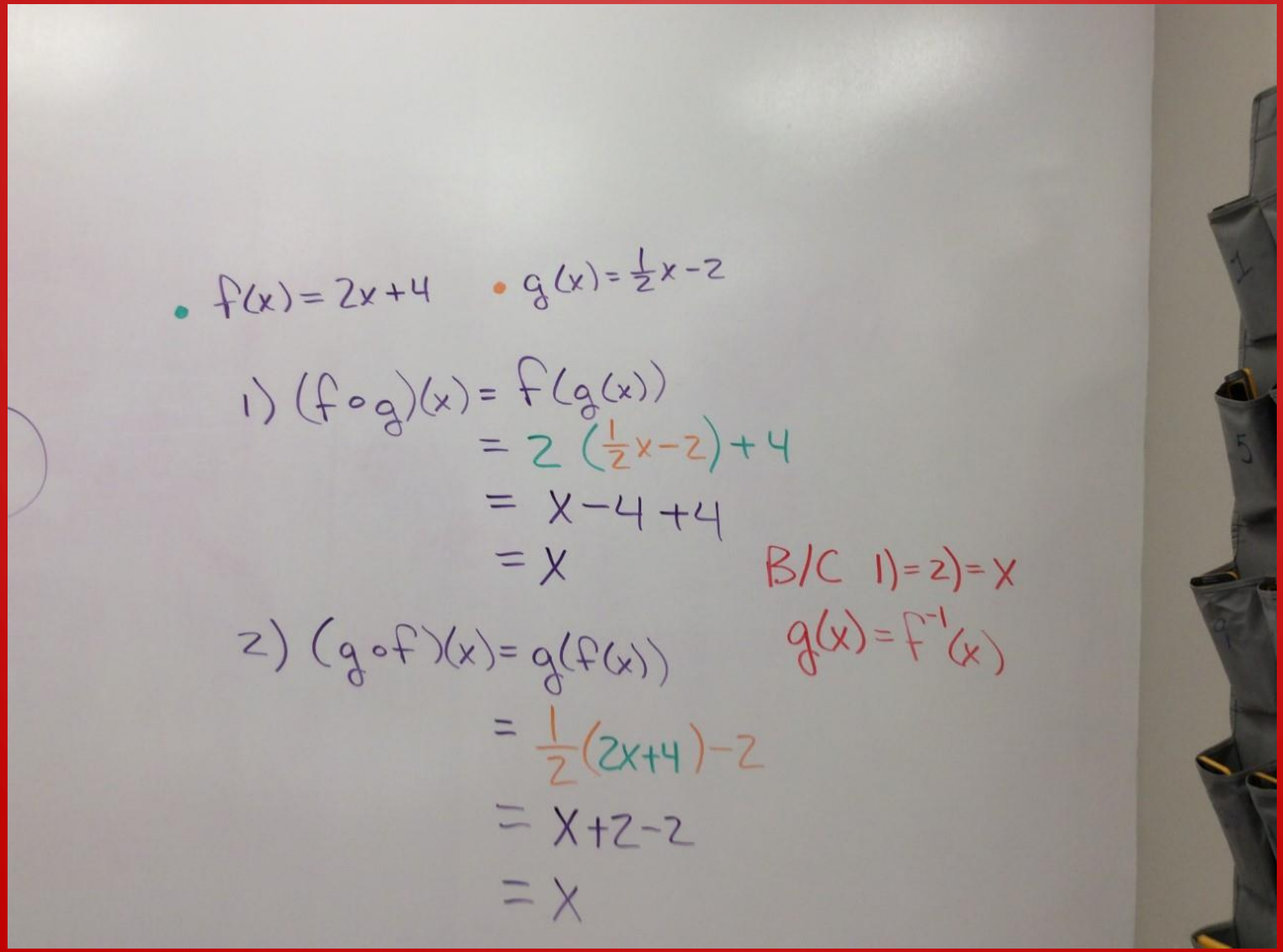
Not Inverses

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

*

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

$= x$


• $f(x) = 2x + 4$
• $g(x) = \frac{1}{2}x - 2$
1) $(f \circ g)(x) = f(g(x))$
$= 2\left(\frac{1}{2}x - 2\right) + 4$
$= x - 4 + 4$
$= x$
B/C 1) = 2) = x
$g(x) = f^{-1}(x)$
2) $(g \circ f)(x) = g(f(x))$
$= \frac{1}{2}(2x + 4) - 2$
$= x + 2 - 2$
$= x$