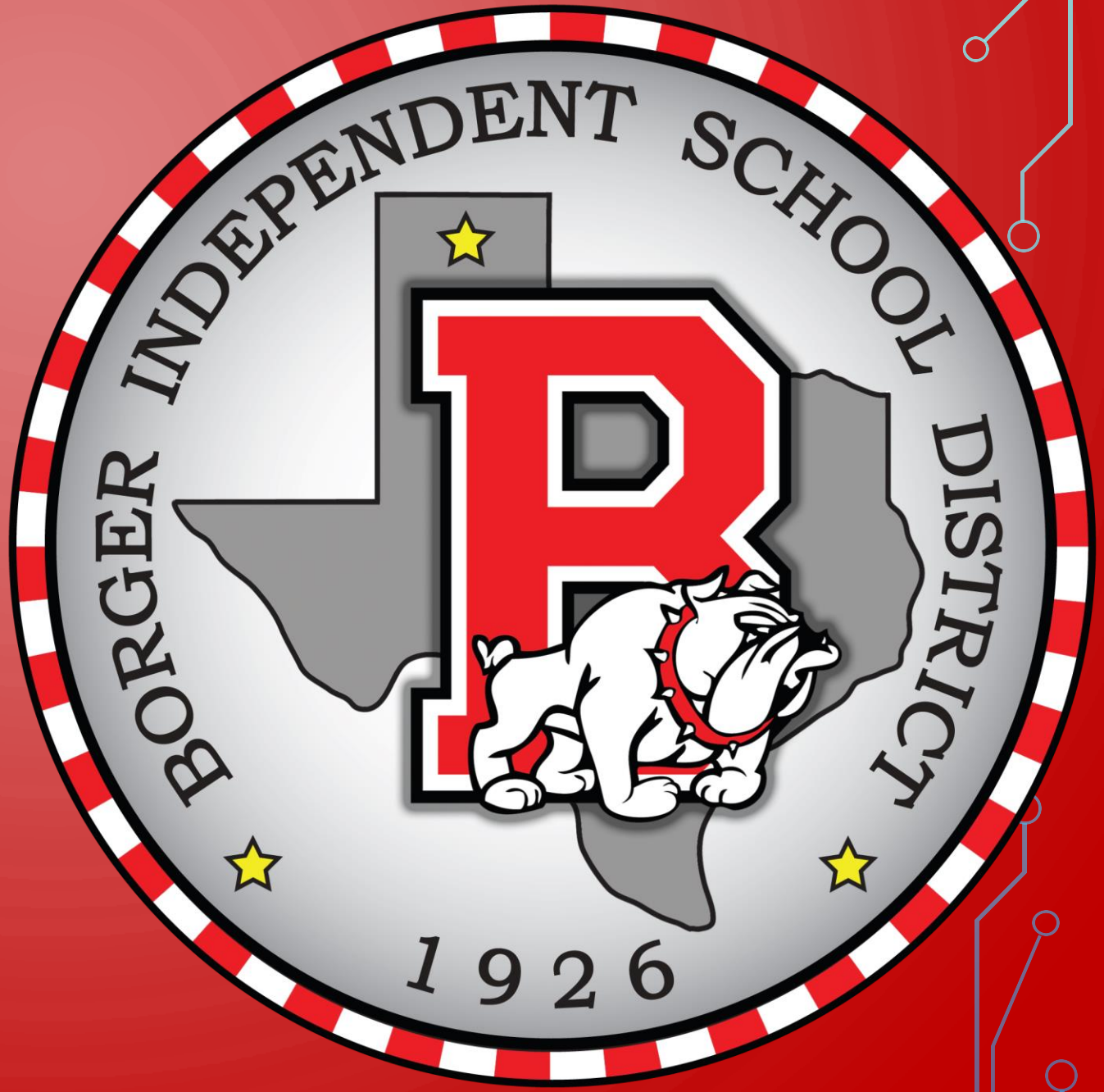
# BOARD NOTES

5 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.

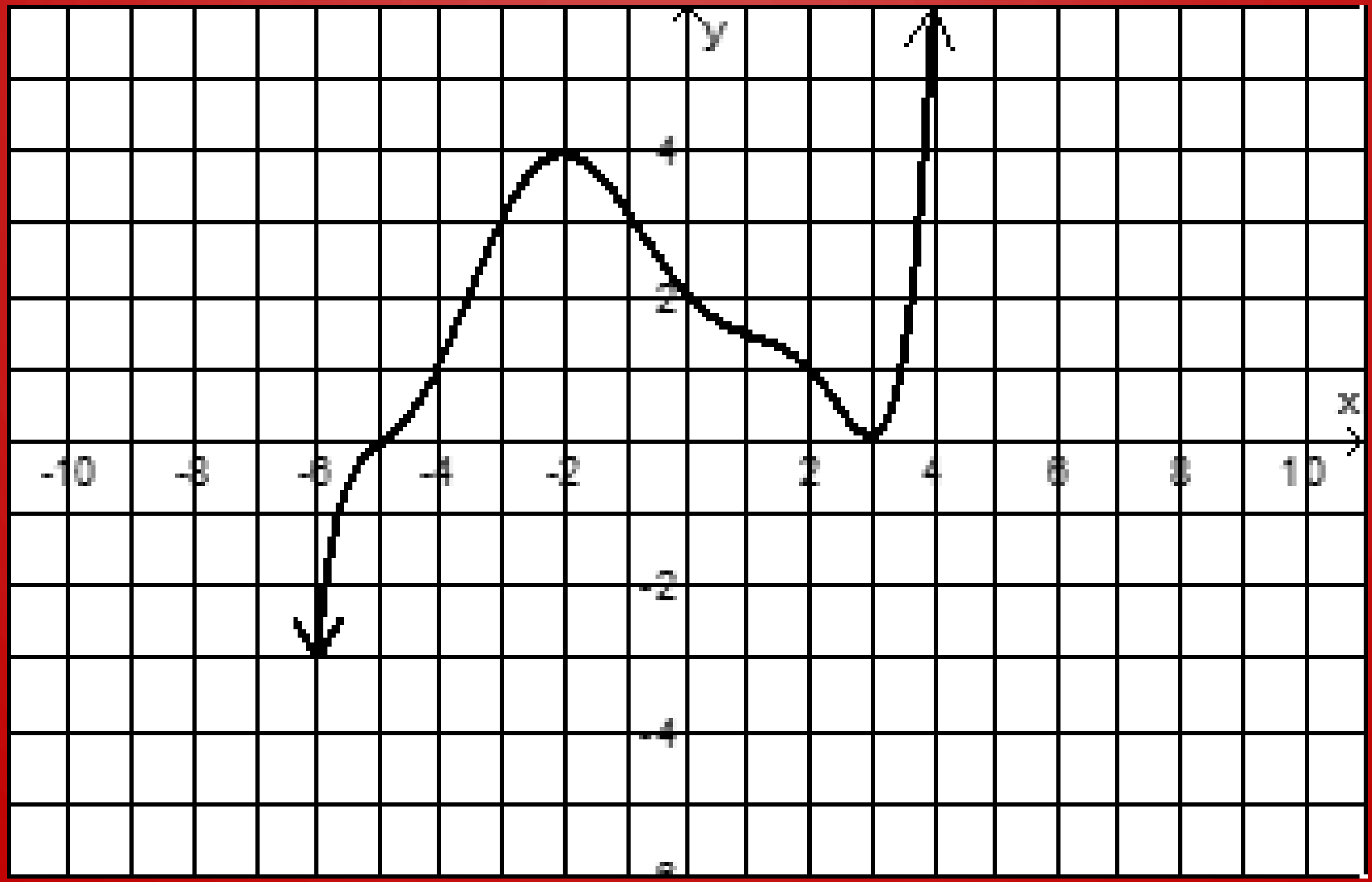
# We will be able to determine the maximum and minimum of a given function if it exists.

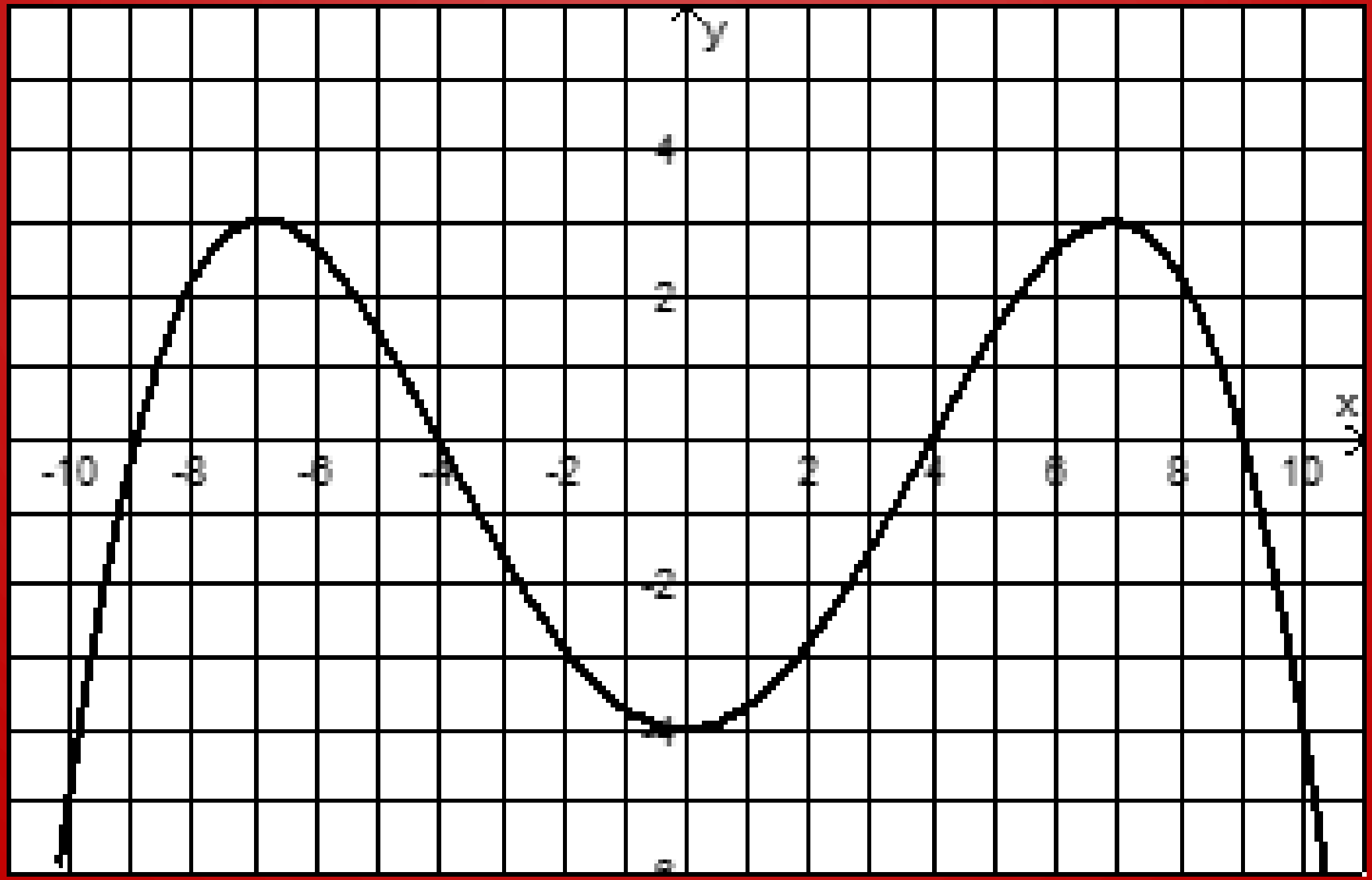
## WHAT WE NEED:

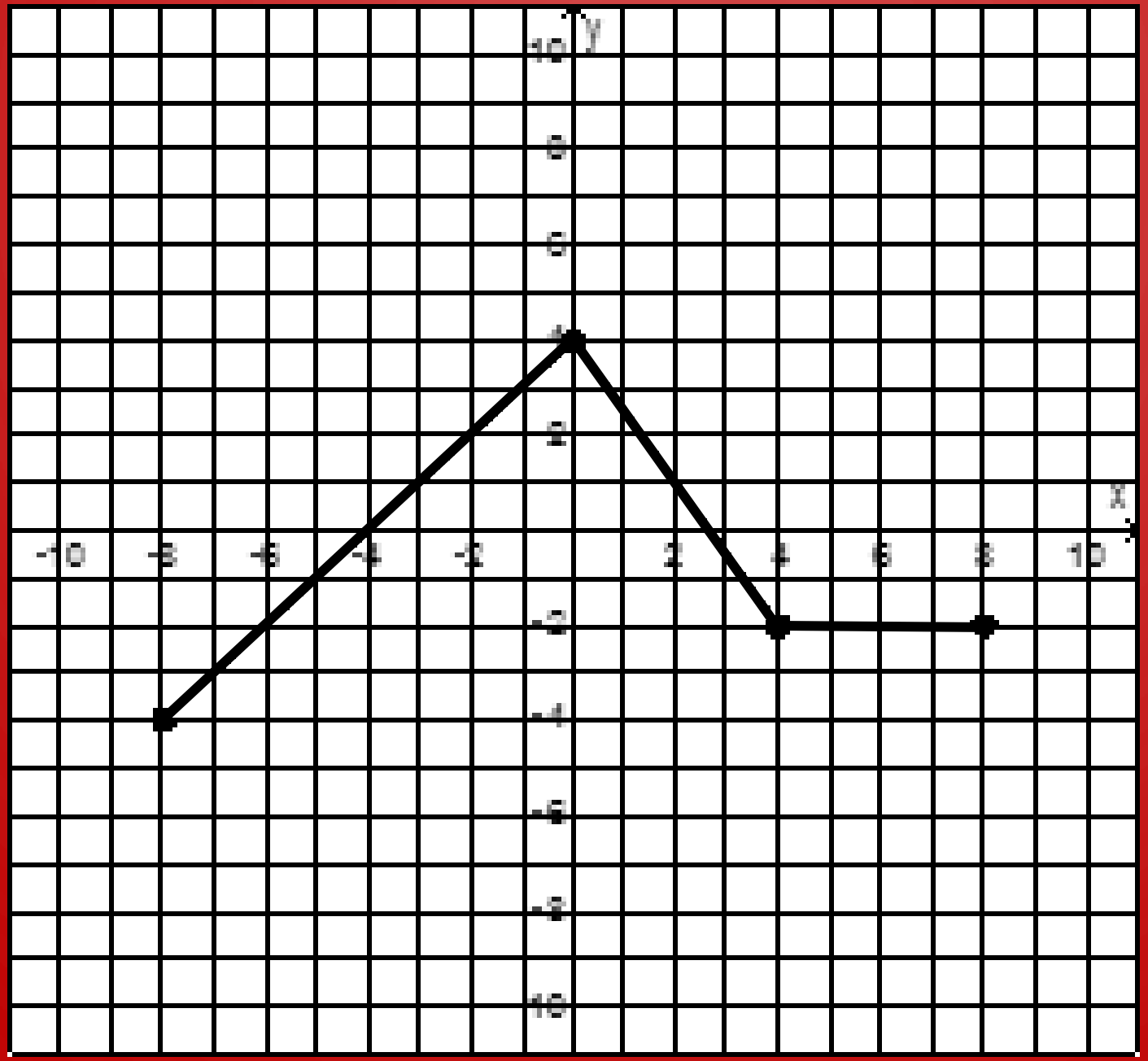
- TI – 84
- Definition of:
  - Maximum
  - Minimum

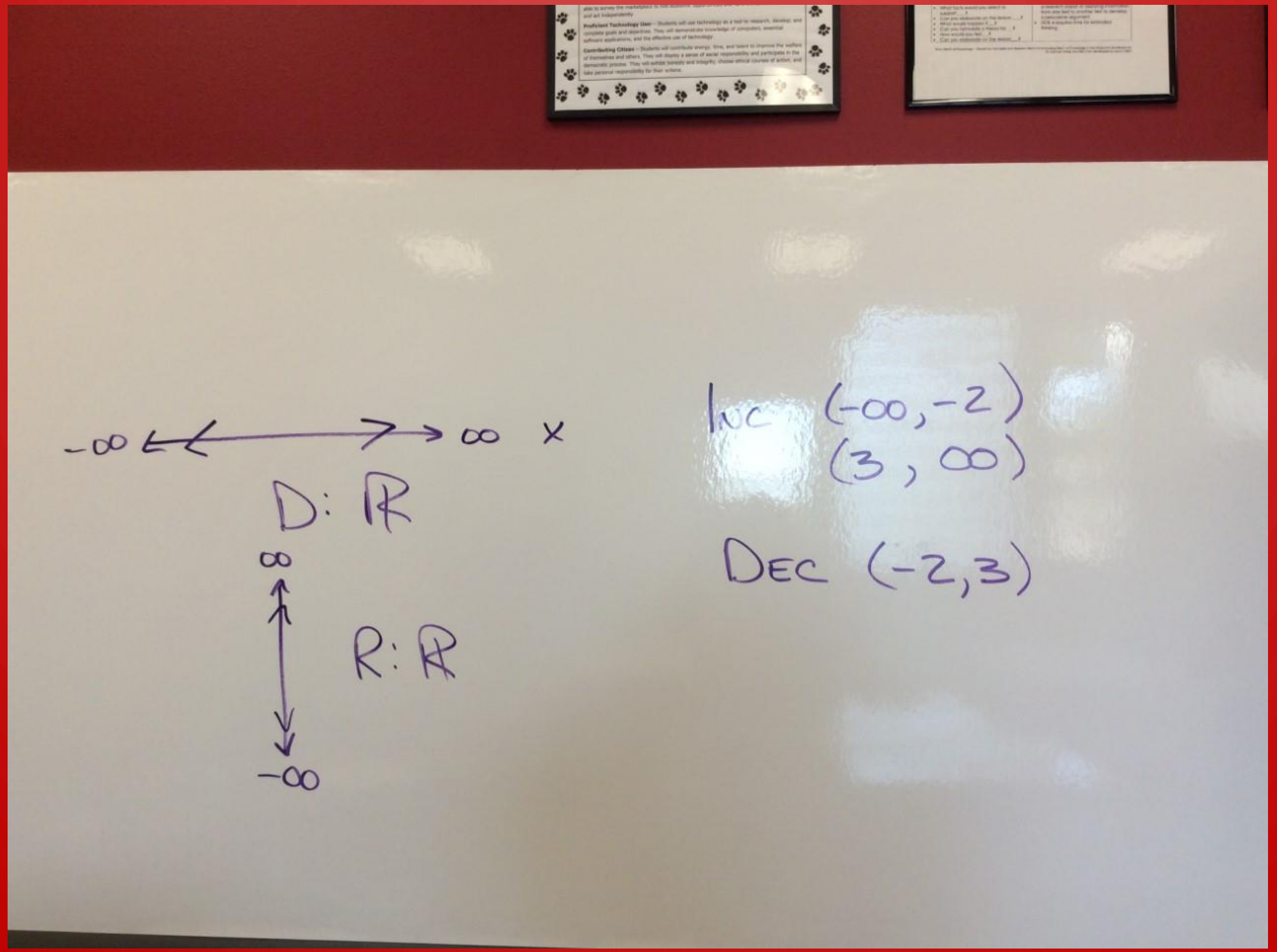
## I WILL BE ABLE TO COMPLETE MY HOMEWORK GIVING THE

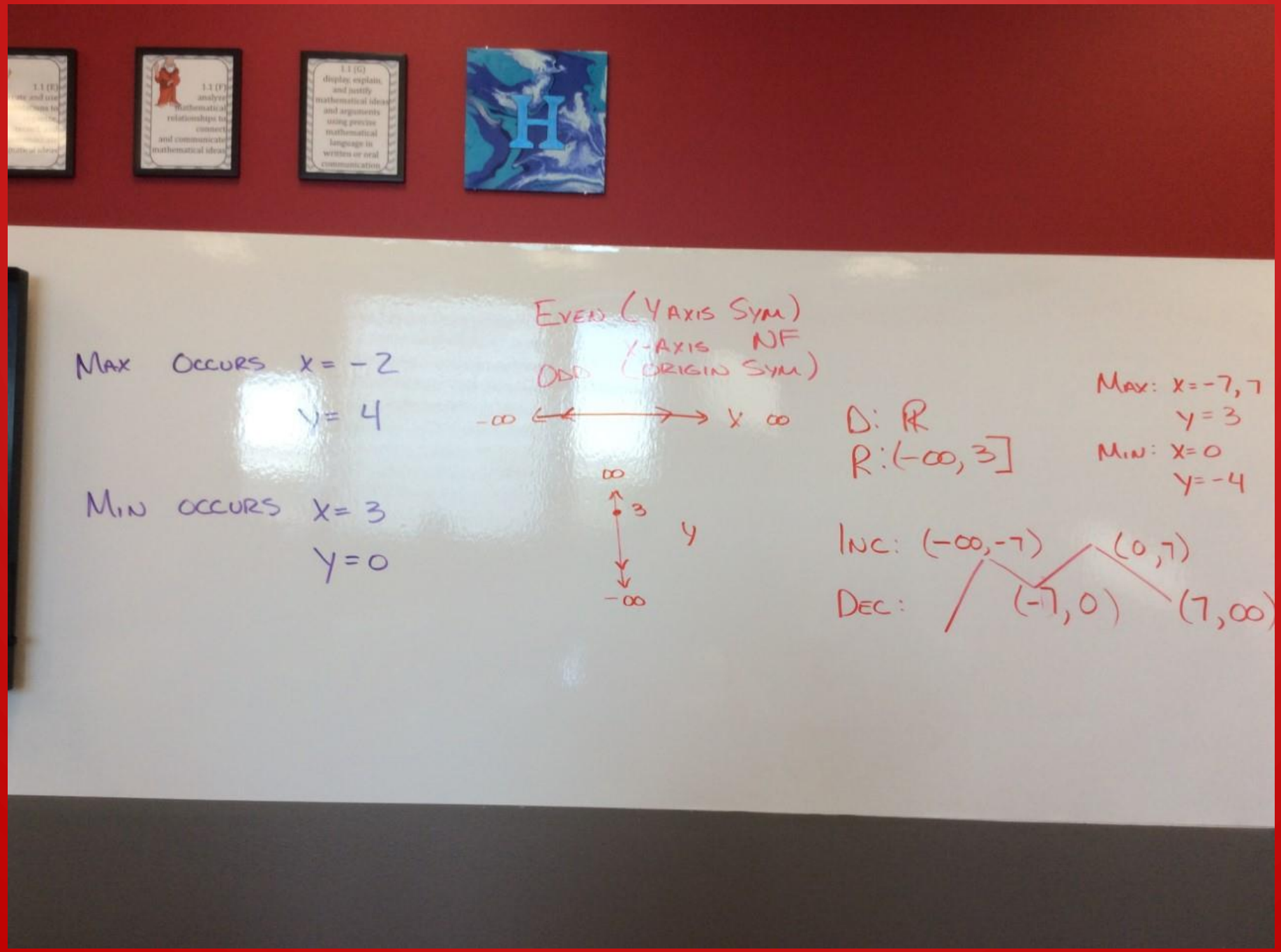
- Domain
- Range
- Intercepts (if any)
- Intervals of: Increasing / Decreasing / Constant
- Reflections
- Even / Odd / Neither
- Transformations

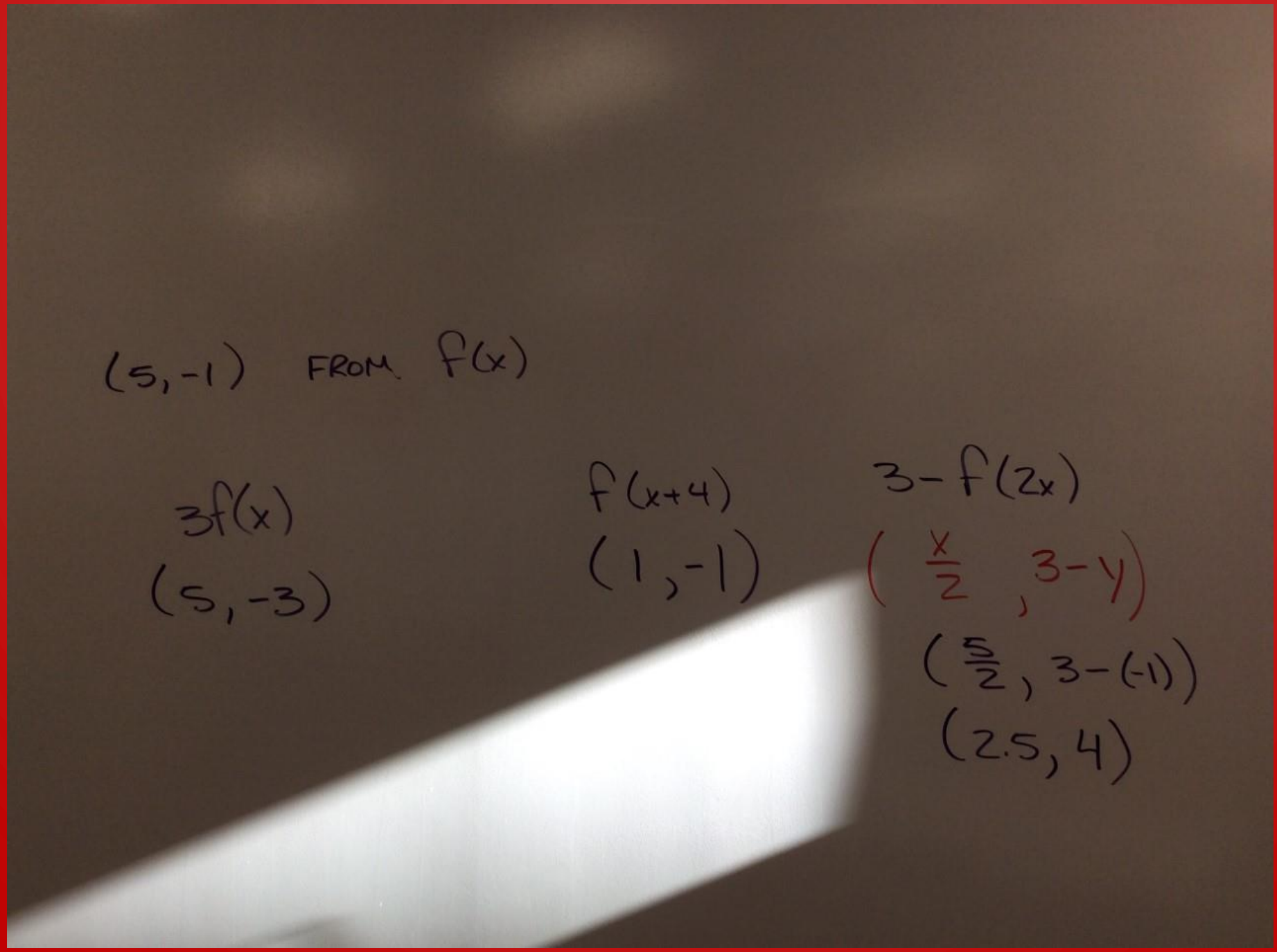

y
x
4
2
-2
-4
-10
-8
-6
-4
-2
2
4
6
8
10


y
x
4
2
-2
-10
-8
-6
-4
-2
2
4
6
8
10


y
x
10
8
6
4
2
-2
-4
-6
-8
-10
-10
-8
-6
-4
-2
2
4
6
8
10


-∞ ∞ x
D: ℝ
∞
R: ℝ
-∞
INC (-∞, -2)
(3, ∞)
DEC (-2, 3)


MAX OCCURS x = -2
y = 4
MIN OCCURS x = 3
y = 0
EVEN (Y AXIS SYM)
Y-AXIS NF
ODD (ORIGIN SYM)
-∞ ← → ∞ x
∞
3
y
-∞
D: ℝ
R: (-∞, 3]
MAX: x = -7, 7
y = 3
MIN: x = 0
y = -4
INC: (-∞, -7) (0, 7)
DEC: (-7, 0) (7, ∞)


(5, -1) FROM f(x)
3f(x)
(5, -3)
f(x+4)
(1, -1)
3 - f(2x)
(x/2, 3 - y)
(5/2, 3 - (-1))
(2.5, 4)

| x | y |
|---|---|
| -8 | -4 |
| 0 | 4 |
| 4 | -2 |
| 8 | -2 |

D: [-8,8]
R: [-4,4]
f(x)

MAX AT x=-2
y=0

f(x)-6

DOMAIN DEC BY $\frac{1}{2}$

$\Rightarrow f(2x)$

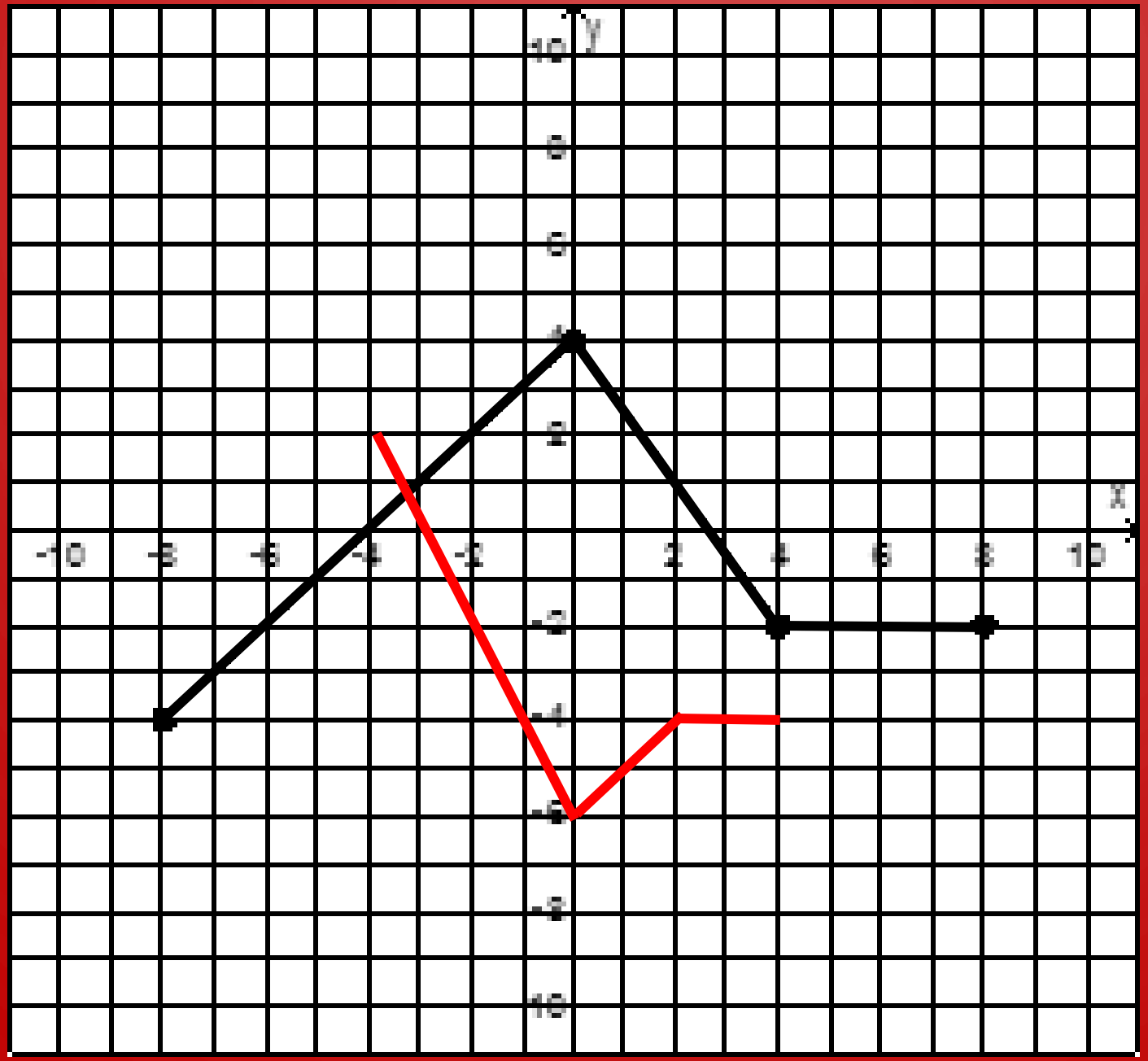
RANGE GOES FROM [-4,4]
TO [-6,2]

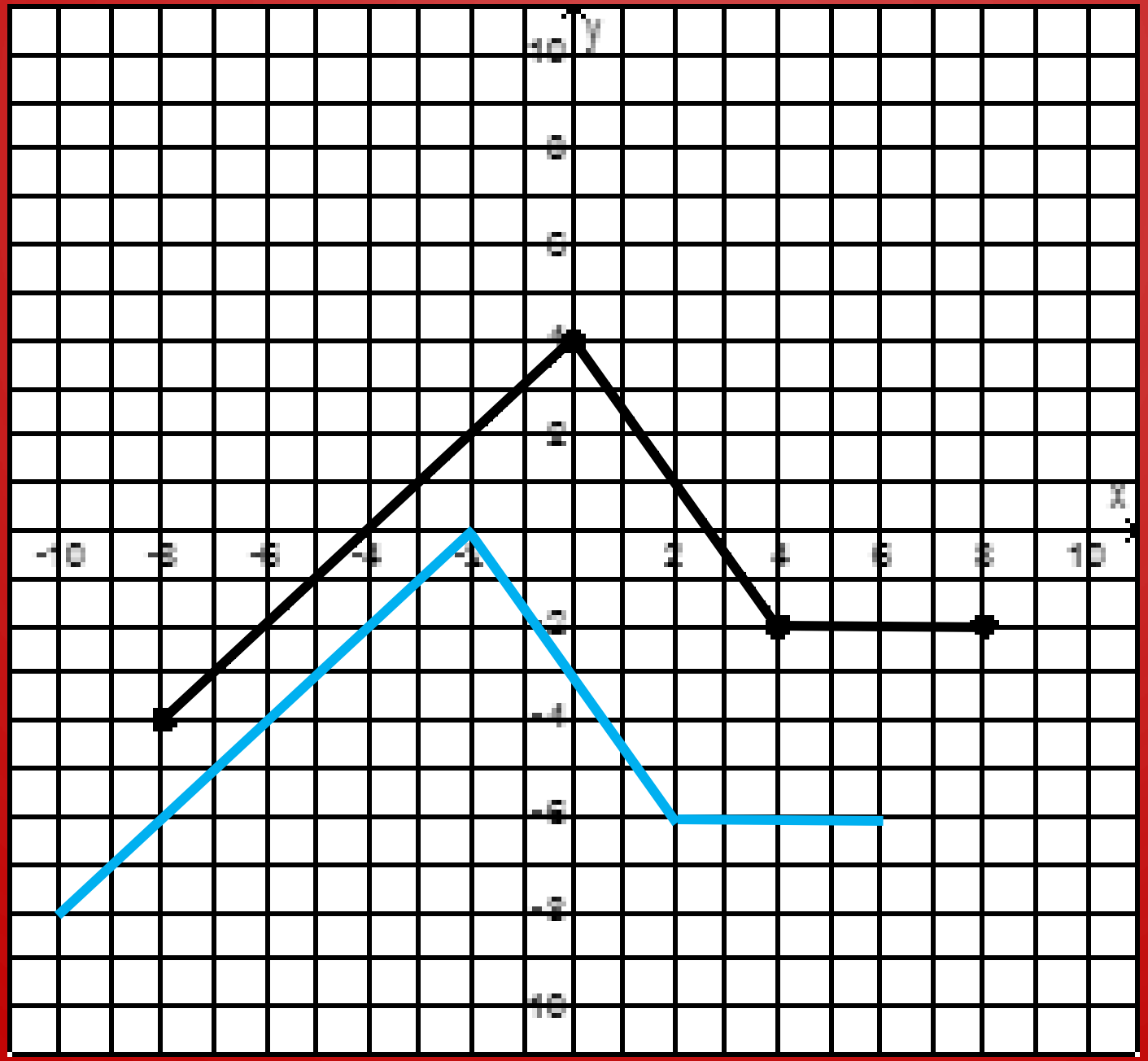
TRANSFORM
D: [-4,4]
R: [-6,2]
W/ X-AXIS REFL

$\Rightarrow f(2x)-2$

RAX

$-f(2x)-2$


y
x
10
6
2
-2
-4
-6
-10
-10
-8
-6
-4
-2
2
4
6
8
10


y
x
10
6
2
-4
-8
-10
-6
-4
-2
2
4
6
8
10