

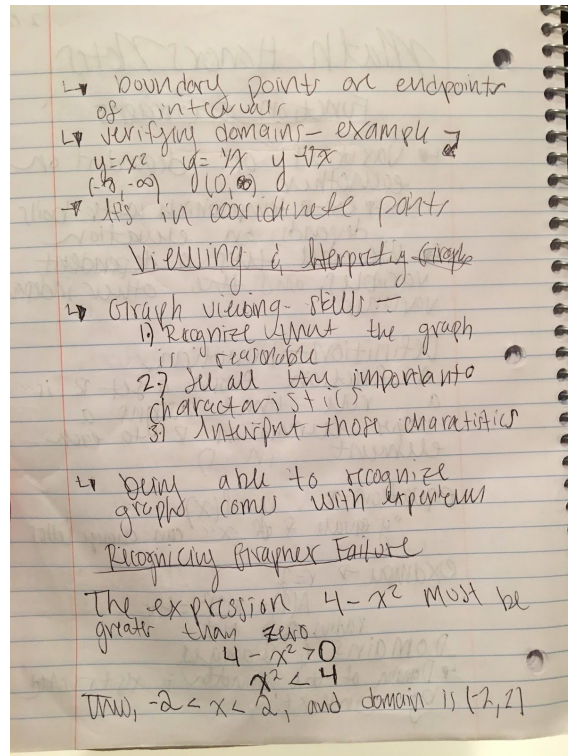
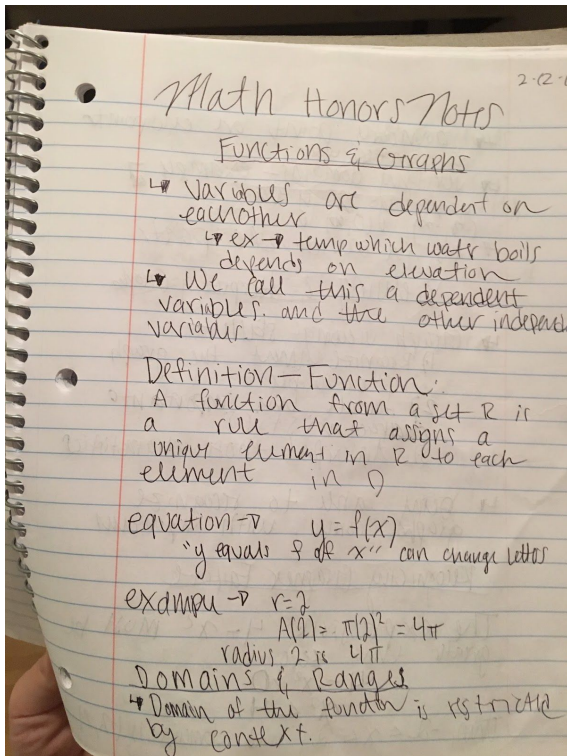
Math 3 Honors Pre-Calc: Functions Chapter

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I grappled with taking the information I read in the text book and applying it to the problem set. It made sense when I took the notes but as soon as I was ready to start on the problems it was difficult to apply what I had learned. It took patience, persistence, and confidence, (HaM) but I finally got a hang of it.

Beautiful notes and problem set

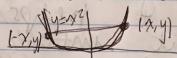


Even Functions & Odd Functions

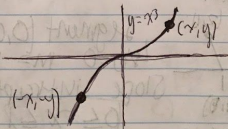
A function $y = f(x)$ is an \Rightarrow
 even function of x if $f(-x) = f(x)$
 odd function of x if $f(-x) = -f(x)$,
 for every x in the function's domain.

\hookrightarrow even & odd come from powers of x .

\hookrightarrow the graph of an even is symmetric about the y -axis.



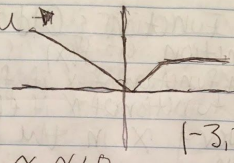
\hookrightarrow the graph of an odd function is symmetric about the origin.



Functions Defined in Pieces

\hookrightarrow Some functions are defined by single formulas, others are solved by applying different rules.

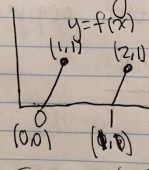
example \rightarrow



$$y = \begin{cases} -x, & x < 0 \\ x^2, & 0 \leq x \leq 1 \\ 1, & x > 1 \end{cases}$$

\hookrightarrow TO figure out a function easier, Φ helps to break it into pieces to solve.

Writing Formulas For Likelihood Pieces



Segment $(0,0) \rightarrow (1,1)$
 $\hookrightarrow b=0$ $m=1$ (contextual w.)

Slope intercept eq. = $y=x$
 $0 \leq x \leq 1$

Segment $(1,0) \rightarrow (2,1)$
 $1 \leq x \leq 2$

- You have to write a \cup the rules to graph the equation

1-11 odd & 1-49 odd 2-14-16

Math Honors Problems

1) $3x+1 \leq 5x+3$
 $-5x+1 \leq 5x+3$
 $-8x \geq 2$
 $x \geq \frac{1}{4}$

3) $|x-3| \leq 4$
 $|x| \leq 7$

5) $x^2 < 16$
 $|x| < 4$

7) $f(x) = x^2$ $g(x) = 1x + 3$
 You have to move it 2 left and 3 down.

8) $f(x) = x^2 - 5$
 a) $f(4) = 11$ b) $f(-6) = 31$

11) $f(x) = \sqrt{x+7}$
 a) $f(4) = 4$ b) $f(1) = 3$
 a) $\sqrt{11} = 3.316$ b) $\sqrt{8} = 2.828$

1) The area of a circle as a function of diameter -
 $A = \frac{\pi d^2}{4}$

3) Surface area of cube length of edge
 $S = 6e^2$

5) $y = 4 - x^2$
 a) Δ $b) y = 4$

7) $y = 2 + \sqrt{x-1}$
 a) 1 b) $y = 2$

9) $y = 2 + \sqrt{3-x}$
 a) 3 b) $(0, 2)$

11) $y = \sqrt{x-3}$
 a) $y = 2$ b) 3
 c) Δ

13) $y = -\sqrt{-x}$
 a) 0 b) 0
 c) Δ

15) $y = \sqrt{4-x^2}$
 a) $(-2, 2)$ b) 2
 c) Δ

17) $y = 1 + \frac{1}{x^2}$
 a) 0 b) 1 c) Δ

19) $y = x^4$
 even Δ

23) $y = \sqrt{x^2+2}$
 even Δ

21) $y = x+2$
 even Δ

27) $y = \frac{1}{x^2-1}$
 neither Δ

25) $y = \frac{x^2}{x^2-1}$
 odd Δ

31) $f(x) = \begin{cases} 3-x, & x < 1 \\ 2x, & 1 \leq x \end{cases}$
 b) real c) $(2, 3)$

29) $f(x) = -|3-x| + 2$
 b) $(3, 2)$ Δ \rightarrow (1) real

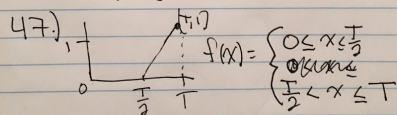
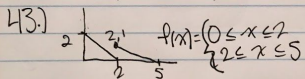
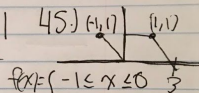
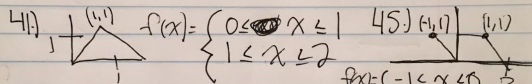
33) $f(x) = \begin{cases} 4-x^2, & x < 1 \\ 3x^2+3x, & 1 \leq x \leq 3 \\ x+3, & x > 3 \end{cases}$
 b) Δ c) $(2, 1)$

33) $f(x) = \begin{cases} 4-x^2, & x < 1 \\ 3x^2+3x, & 1 \leq x \leq 3 \\ x+3, & x > 3 \end{cases}$

Continued

35) ~~is~~ this is
 true then that
 means for each x coordinate there is
 a y coordinate that would correspond
 with the value.

37.) no \emptyset 39.) \neq yes



49.) $f(x) = x + 5$, $g(x) = x^2 - 3$ $-3 + 5$

- a) $x^2 + 2$ b) $x^2 + 10x + 22$ c) 2

d) 6