

MTH 150 LaTeX basics

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Section 1.1

Writing in math mode

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21. For each of the following functions, evaluate:

$f(-2)$, $f(-1)$, $f(0)$, $f(1)$, and $f(2)$

$$f(2) = 4 - 2(2)$$

$$f(-2) = 4 - (-4)$$

$$f(-2) = 8$$

$$f(-1) = 4 - 2(-1)$$

$$f(-1) = 4 - (-2)$$

$$f(-1) = 6$$

$$f(0) = 4 - 2(0)$$

$$f(0) = 4 - 0$$

$$f(0) = 4$$

$$f(1) = 4 - 2(1)$$

$$f(1) = 4 - 2$$

$$f(1) = 2$$

$$f(2) = 4 - 2(2)$$

$$f(2) = 4 - 4$$

$$f(2) = 0$$

Reflection: This problem was easy to comprehend because this was a unit we did in high school M1 (the math class name). Once I saw the example from my notes last year as resource the problem came back to me and how to solve it.

$$\begin{aligned}
27. f(-2) &= 3\sqrt{3}x + 3 \\
(-2) &= 3\sqrt{3} - 2 + 3 \\
(-2) &= 3\sqrt{3}1 \\
(-2) &= 3 + 1 \\
f(-2) &= 4
\end{aligned}$$

Reflection: This problem here took me to resource myself to youtube to watch other provide similar examples. After watching for 10 minutes I was able to answer this on my own and with ease.

Section 1.1

Cont.

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35. Suppose $f(x) = x^2 + 8x - 4$. Compute the following:

$$\begin{aligned}
a. f(-1) + (1) \quad b. f(1) - f(1) \\
a - f(x) &= (x^2 + 8x - 4) \\
&= (1^2 + 8(-1) - 4) \\
&= 1 - 8 - 4 \\
f(-1) &= -13
\end{aligned}$$

$$\begin{aligned}
b. \\
ab - f(x) &= (x) = (x^2 + 8x - 4) \\
&= (x) = (1^2 + 8(1) - 4) \\
&= 1 + 8 - 4 \\
f(1) &= 5 \\
-- > f(-1) + f(1) &= -13 + 5 = -8 \\
-- > Answer : f(-1) + f(5) &= -8
\end{aligned}$$

Reflection: Just as the one below will state, these problems gave me issues solving. Due to forgetting how to solve them from high school until a friend showed me how learn on my own and break it down step by step; and in the end gave myself a challenge doing it on my own.

36. Suppose $x^3 + x + 3$. Compute the following

$$a. f(-2) + (4) \quad b. f(-2) - (4)$$

$$\begin{aligned}
 a - f(x) &= (2^2 + (-2) + 3) \\
 &= 4 - 2 + 3 \\
 f(-2) &= 5
 \end{aligned}$$

b.

$$\begin{aligned}
 ab - f(x) &= (4^2 + 4 + 3) \\
 &= 16 + 4 + 3 \\
 f(4) &= 23 \\
 f(-2) + f(4) &= 23 + 5 = 28 \\
 \text{--} > \text{Answer} : f(-2) + f(4) &= 28
 \end{aligned}$$

Reflection: In this problem here I had difficulty for a couple of days until one of my friends walked me through. Allowing me to figure it out without giving the answer away; although a struggle it paid off in the end.

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Write the equation of the circle centered at $(-9, 8)$ with radius = 11

$$\begin{aligned}
 (x - h)^2 + (y - k)^2 &= r^2 \\
 (9 - h)^2 + (y - k)^2 &= 11^2 \text{ --} > 121
 \end{aligned}$$

Reflection: This problem here was one of my more confident answers given my understanding of an equation of circle in order to answer the problem here. I actually liked answering this problem and will continue to progress my skill set here.

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*Section1.2

Cont.

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8. Find the domain of each function

$$\begin{aligned}
 f(x) &= 5\sqrt{x + 3} \\
 x &= [-3, \infty) \quad x \geq -3
 \end{aligned}$$

Reflection: This problem here I was able to comprehend easily, or at least I believe to think I did it the right way from last years knowledge. In addition to going over this in class a quick refresher.

$$9. f(x) = 3\sqrt{x - 2}$$

$$x = [2, +\infty) \quad x \geq -2$$

Reflection: This problem I was easily able to do from last years notes of doing domain and plotting them on the graph. As well as a classmate in class asking for help and going over a similar problem like this.

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$$f(x) = \left\{ \begin{array}{l} x^3 + 1, \text{ if } x \geq 0 \\ 4, \text{ if } x \leq x \leq 3 \\ 3x + 1, \text{ if } x \geq 3 \end{array} \right\} \text{IMG}_1801 - \text{Copy}.jpg$$

Reflection: This problem caused quite the conundrum as a first time user of overleaf, I had to constantly resource myself to the overleaf faq page and stack exchange for cmd lines to build the equation. Furthermore this equation me the longest to create and did not enjoy Scouring for an hour, NOT on the math, just to write out the bracket.

31. Sketch a graph of each piecewise function

$$f(x) = \left\{ \begin{array}{l} |x|, \text{ if } x \leq 2 \\ 5, \text{ if } x \geq 2 \end{array} \right\} \text{IMG}_1802 - \text{Copy}.jpg$$

Reflection: This problem took a fraction of time since I copied and pasted the code from above to answer this problem, as well as graphing it digitally. Learning from my prior mistake I understood the process better.

Section 1.3

Cont

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5. Find the average rate of change of each function on the interval specified.

$$x(2) = (x^2) \text{ on } [1, 5]$$

$$x = 6$$

Reflection: This problem I was able to solve from my notes last year. Here you bring 1 squared to add to 5 and eventually equals are solution above.