

MAT 1362 – Fall 2018

Assignment 1

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QUESTION 1. Write your solution to the first question here. You can write in-line mathematics like this: $x^2 + a_1^4 + b' = 2$. Write centered mathematics like this:

$$\begin{bmatrix} a & -1 & 2 \\ 0 & * & \sin z \\ 2 & \frac{2}{3} & -\infty \end{bmatrix}.$$

Refer to an equation such as

$$(1) \quad x^2 + y^2 = z^2, \quad x, y, z \in \mathbb{Z}, \quad x \geq 0,$$

like this: Check out (1).

QUESTION 2. Here's another question. This is fun. If you have a long series of equations that take more than one line, you can use the multiline* environment like this:

$$\begin{aligned} \left(\frac{1+x}{y + \frac{2}{z+\cos y}} \right)^{-1} &= \int_1^2 f(x), dx + y''(t) + X^{\mathbb{R}} + (1+x^2+y^3)^{2+z} = \prod_{i=1}^{\infty} (x^i + iyz) = e^{e^{|x|}} \\ &= \{(x, y) : x^5 + y^t \in \mathbb{C} \text{ for all } t\} = \mathbb{R} \times \mathbb{C} \oplus \mathbb{R} \otimes \mathbb{Z} \cap \mathbb{Q} \cup \langle 2 \rangle = \mathcal{A} \setminus \mathcal{B} \\ &= \alpha + \beta + \gamma + \delta + \pi + \Omega + \zeta + \Xi = \Delta + \nabla. \end{aligned}$$

Use multiline (without the *) if you want it to be numbered. This goes for other types of equation environments too. If you want to align some expressions, you can use the align environment:

$$\begin{aligned} A \cup B &= C \cap D \\ &= \bar{x} + \overline{z + 2y} \\ &= \sqrt{2+5} \\ &\neq \sqrt[4]{y+8} \\ &\geq \gamma^2 \\ &\leq \omega \\ &\in A \\ &\notin B \\ &\subseteq C \\ &\subsetneq D. \end{aligned}$$

QUESTION 3. It must be terrible to have a sore throat if you're a giraffe. Here's a sum:

$$\sum_{n=1}^{\infty} x^n = \frac{1}{1-x}.$$

If you want to add explanations to the side of a series of equalities or implications, do this:

$$\begin{aligned} A &\implies B && \text{by Axiom 1} \\ &\implies C && \text{by Proposition 2} \\ &\implies D && \text{because I said so} \end{aligned}$$

Note that we use the `text` command to write text within a math environment. Otherwise, L^AT_EX will think your text is mathematics and the formatting won't be appropriate for text.

QUESTION 4. Let's have fun with math fonts in an itemized list:

- mathcal: *ABCDEFGHIJKLMNOPQRSTUVWXYZ*
- mathbb: **ABCDEFGHIJKLMNOPQRSTUVWXYZ**
- mathbf: **ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz**
- mathfrak: *ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz*
- mathrm: *ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz*
- mathit: *ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz*
- mathsf: ***ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz***
- mathtt: **ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz**

We can also do enumerated lists:

- (a) This is the first item.
- (b) This is the second item
 - (i) This a subitem in the second item.
 - (ii) You can next enumerate/itemize environments inside each other like this.

To find the L^AT_EX code for a symbol, this website is helpful:

<http://detexify.kirelabs.org/classify.html>

You can add a hyperlink to some text [like this](#).