

Math 291
Week 3 Lab

Instructions: Use L^AT_EX to typeset a document containing each component described below. Turn in your lab by emailing it to jamesju@mnstate.edu or by uploading it to the appropriate assignment folder on the course D2L page. You should email both your raw TeX (.tex) file and your compiled document (in either .ps or .pdf form). Make sure that your name appears somewhere in your file name. You will be graded on both your raw TeX code and the accuracy of your compiled document.

Don't forget to include a title block similar to the one you did for Labs 1 and 2.

1. Set up the page layout as you did for Lab 2.
2. Typeset each of the following (*pay close attention to which display mode is being used*):

(a) $\lim_{x \rightarrow 2^-} f(x) = \frac{\pi}{6}$

(b) $A = \sum_{i=1}^M \frac{2}{3} (s_i)^3 \Delta\alpha_i$

(c)

$$A = \int_{\theta_1}^{\theta_2} \frac{1}{2} [r_o^2 - r_i^2] d\theta$$

(d)

$$f^+(x) = \liminf_{h \rightarrow 0^+} \frac{f(x+h) - f(x)}{h} \tag{1}$$

(e)

$$\left\{ \left[\left[\frac{\bigcup_{\lambda \in \Lambda} A_\lambda}{\bigcap_{\lambda \in \Lambda} B_\lambda} \right] \right] \right\}$$

3. Typeset each of the following expressions. You will need to hunt down some special symbols for most of these.

(a) $\vec{d} + \vec{r} + \hat{a} + \acute{g} = \acute{o} - \ddot{n}$

(b) $12\vec{i} + 8\vec{j} - 3\vec{k} - (3\vec{i} - 5\vec{j} - 4\vec{k}) = 9\vec{i} + 13\vec{j} + \vec{k}$

(c) $\widetilde{xyz} + \widehat{pdq}$

(d)

$$\overline{\overline{y^2 - z^2}} + \overleftarrow{\underline{y_2 - z_2}}$$

(e) $\binom{n}{k} \stackrel{\text{def}}{=} \frac{n!}{k!(n-k)!}$

(f) $\underbrace{x \cdot x \cdot \dots \cdot x}_{10} = x^{10}$

4. Typeset the following equations:

$$A_1 = T_1 \cap \dots \cap T_n \tag{2}$$

$$A_2 = T'_1 \cap \dots \cap T'_n \tag{3}$$

$$A_1 \cap A_2 = (T_1 \cap \dots \cap T_n) \cap (T'_1 \cap \dots \cap T'_n) \tag{4}$$