

Assignment #4

Due: Friday, January 14, 2011

Once again, you have two assignments.

1. Reproduce the document contained on page 2 of this file. I want your name where [Your name here] is, but everything else should be identical. Make a `.pdf` file and send it to me through the Sakai Drop Box.
2. Type page 3 of this file in a word processor of your choosing. Then type that same page in \LaTeX . After you finish typing it in \LaTeX , write a short paragraph in the same \LaTeX document comparing your experience using both programs to type mathematics. Which did you prefer? (Be honest.) Why (specifically)? This portion of the assignment should result in one `.doc` (or something) file and one `.pdf` file sent to me through the Drop Box. (Let me know if you have questions about these instructions.)

This paragraph is in a **minipage** environment which is 5 inches wide. Furthermore, it is half an inch below the line with the date above. After this paragraph, I will skip .2 inches and start to type some more. Incidentally, this document has a 1.2-inch margin all the way around.

Aside from $4 \times 4 = 16$, this is my absolute favorite equation:

$$\text{Area of a triangle} = \frac{b \cdot h}{2}. \tag{1}$$

Mathematicians are often interested in this integral:

$$\int e^{x^2} dx.$$

This integral is actually *unsolvable*, which is a bit bewildering. Solving a system of linear equations is usually much easier. Such a system can be written like this:

$$2x + 3y - 6z = 4 \tag{2}$$

$$2y + 5z = -2 \tag{3}$$

$$x - y + 4z = 1. \tag{4}$$

This same system can be written in matrix form like this:

$$\begin{bmatrix} 2 & 3 & -6 & 4 \\ 0 & 2 & 5 & -2 \\ 1 & -1 & 4 & 1 \end{bmatrix}.$$

The last column in the previous matrix is special, and we can mark it off using the `array` environment. All of my columns are still center-aligned.

$$\left[\begin{array}{ccc|c} 2 & 3 & -6 & 4 \\ 0 & 2 & 5 & -2 \\ 1 & -1 & 4 & 1 \end{array} \right]$$

To end this assignment, I will record some important formulas in two columns. You'll notice that this bumps up against the bottom of this page. How did that happen? I think the alignment here is beautiful, don't you? I put 1 inch between columns.

$$A = \pi r^2 \tag{5}$$

$$A = x^2 \tag{5}$$

$$C = 2\pi r \tag{6}$$

$$P = 4x \tag{6}$$

[Your name]

Here is a well-known formula:

$$\sum_{i=1}^n i = \frac{n(n+1)}{2}.$$

This formula is not as well known, but it is easy to verify:

$$\int_0^{10} x^2 dx = \frac{1000}{3}.$$

Finally, here is a simple matrix multiplication calculation:

$$\begin{bmatrix} 1 & 0 \\ 2 & 3 \end{bmatrix} \begin{bmatrix} 0 & 5 \\ -2 & 2 \end{bmatrix} = \begin{bmatrix} 0 & 5 \\ -6 & 16 \end{bmatrix}.$$