My \LaTeX{} Portfolio

your name

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Well, three or four months run along, and it was well into the winter now. I had been to school most all the time and could spell and read and write just a little, and could say the multiplication table up to six times seven is thirty-five, and I don’t reckon I could ever get any further than that if I was to live forever. I don’t take no stock in mathematics, anyway.

–Huckleberry Finn

Quote attribution typeset with \begin{flushright} \text{\large --Huckleberry Finn} \end{flushright}

\[
\int \ln(t) \, dt = t \ln(t) - \int 1 \, dt \quad \text{(Integration by Parts)}
\]

Text can be accomplished inside math mode with \text{...}, but only if you load the package amsmath

\[
\begin{bmatrix}
1 & 2 & 3 \\
0 & -6 & 7
\end{bmatrix}^T = \begin{bmatrix}
1 & 0 \\
2 & -6 \\
3 & 7
\end{bmatrix}
\]

Those are typeset with \begin{bmatrix}, and the ‘T’ exponent is just a superscript

\[
a = \sum_{n=0}^{\infty} (b_n - b_{n+1})
= \lim_{n \to \infty} (b_0 - b_1) + (b_1 - b_2) + \ldots + (b_{n-1} - b_k)
= \lim_{n \to \infty} (b_0 - b_n) \quad \text{(by Additive Cancellation)}
\]

For this, you will need the align* environment. Don’t worry about centering until the end.

\[
\sqrt{\frac{xy}{2} \left( \frac{1}{x} + \frac{1}{y} \right)} = \sqrt{\frac{y + x}{2}} = 2\sqrt{x + y}
\]

The difference quotient of a function $f$ around a point $a$ is defined as $\lim_{x \to a} \frac{f(x) - f(a)}{x - a}$. Often, in beginning differential calculus, students are required to calculate derivatives this way. This is generally agreed to be a huge pain.

The expression in this paragraph is typeset using \text{\mdisplaystyle}. 
**Schiller/Whitney Similarity Theorem.** Let $A$ and $B$ be matrices. Then, $A$ and $B$ are similar.

**Proof.** Well, if $A$ and $B$ are both matrices, then they are boxes with numbers in them. So, they are similar in that way. □

You will need the package ‘amsthm’ and you will need to declare a new theorem with \newtheorem in the preamble.

$$
\begin{array}{c|cccc}
\times & 0 & 1 & 2 & 3 \\
\hline
0 & 0 & 0 & 0 & 0 \\
1 & 0 & 1 & 2 & 3 \\
2 & 0 & 2 & 0 & 2 \\
3 & 0 & 3 & 2 & 1 \\
\end{array}
$$

This is the tabular environment, including a multicolumn line.

with Ada.Text_Io; use Ada.Text_Io;

procedure Gcd_Test is
  function Gcd (A, B : Integer) return Integer is
    M : Integer := A;
    N : Integer := B;
    T : Integer;
  begin
    while N /= 0 loop
      T := M;
      M := N;
      N := T mod N;
    end loop;
    return M;
  end Gcd;

begin
  Put_Line("GCD of 100, 5 is" & Integer’Image(Gcd(100, 5)));
  Put_Line("GCD of 5, 100 is" & Integer’Image(Gcd(5, 100)));
  Put_Line("GCD of 7, 23 is" & Integer’Image(Gcd(7, 23)));
end Gcd_Test;

This is the listings package, with the settings language=Ada, basicstyle=\ttfamily\small. The code is available online at Rosetta Code.