

Isn't T_EX cool? This document shows how you can use the typographic system T_EX to write stuff like: If ρ and θ are both positive, then $f(\theta) - \Gamma_\theta < f(\rho) - \Gamma_\rho$.

To write a formula, you use backslash control sequences (like `\root` and `\frac`) and various types of braces (like `{}`) to create formulas that are then typeset beautifully. There are many quickie guides on the net', e.g. <http://www-math.mit.edu/18.821/short-math-guide.pdf> & <ftp://ftp.ams.org/pub/tex/doc/amsmath/amsldoc.pdf> & <http://www.bitjungle.com/~isoent/isoent-ref.pdf>.

Here's another example:

$$r = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad \text{The Quadratic Formula} \quad (1)$$

To typeset the quadratic formula (above), use this 'code:'

```
r &= \frac{-b \pm \root \of {b^2-4ac}}{2a} &\text{The Quadratic Formula}
```

To understand how that 'code' results in the typeset formula you need to know that the `\frac` control sequence takes two arguments, `\pm` inserts plus-or-minus, the '`&`' characters tell T_EX where to line up the columns, `\of` is part of `\root`, etc.

Here are some more examples:

$$y = \begin{bmatrix} x_{00} & x_{01} & x_{02} \\ x_{10} & x_{11} & x_{12} \\ x_{20} & x_{21} & x_{22} \end{bmatrix} \quad \text{This is an example of an array with subscripts.} \quad (2)$$

And this ia an example of '*Solve for x*:'

$$\begin{array}{ll} x + 3 = 2x - 4 & \\ x + 3 + 4 = 2x - 4 + 4 & \text{Add 4 to both sides.} \\ x + 7 = 2x & \text{Combine like terms.} \\ x + 7 - x = 2x - x & \text{Subtract x from both sides.} \\ 7 = x & \text{Combine like terms.} \end{array}$$

Check your results...

$$\begin{array}{ll} (7) + 3 = 2(7) - 4 & \text{Substitute 7 for x.} \\ 10 = 14 - 4 & \text{Simplify.} \\ 10 = 10 & \checkmark \end{array}$$