Making Tables in Latex

ForestClaw							
M	S	Wall	Adv. (%)	Fill (%)	Comm. (%)	Regrid (%)	Rate
8	(ns)	228.9	169.8 (74.2)	24.6 (10.8)	33.4 (14.6)	0.2 (0.1)	16.3×10^5
16	(ns)	304.6	232.1 (76.2)	20.4 (6.7)	50.7 (16.6)	0.2 (0.1)	22.0×10^5
8	(s)	511.5	397.1 (77.6)	45.8 (9.0)	66.7 (13.0)	0.3 (0.1)	16.8×10^5
16	(s)	688.8	550.8 (80.0)	37.6 (5.5)	97.8 (14.2)	0.5 (0.1)	21.5×10^5
Uniform		3300.6	2825.2 (85.6)	25.3 (0.8)	246.4 (7.5)	0.0 (0)	30.5×10^5

AMRClaw						
R	b	Wall	Adv. (%)	Fill (%)	Regrid (%)	Rate
2	3	253.9	210.1 (82.7)	6.3 (2.5)	33.3 (13.1)	18.4×10^5
4	3	293.8	279.9 (95.3)	4.8 (1.6)	7.3 (2.5)	20.9×10^5
2	10	553.4	467.2 (84.4)	7.3 (1.3)	69.9 (12.6)	19.7×10^5
4	10	620.2	597.0 (96.3)	6.2 (1.0)	13.2 (2.1)	22.9×10^5
Uniform		3716.3	3684.3 (99.1)	3.8 (0.1)	0.0 (0)	27.2×10^5

Standard table making environment in Latex

```
\documentclass{article}

\begin{document}

\begin{center}
\begin{tabular}{ccc}%
1.112 & 4.5 & 1.112 \\
3.2 & -6.134 & -5.6 \\
\end{tabular}
\end{center}

\end{document}
```

$$\begin{array}{ccc}
1.112 & 4.5 & 1.112 \\
3.2 & -6.134 & -5.6
\end{array}$$

$$\begin{array}{ccc}
1.112 & 4.5 & 1.112 \\
3.2 & -6.134 & -5.6
\end{array}$$

$$\begin{array}{ccc}
1.112 & 4.5 & 1.112 \\
3.2 & -6.134 & -5.6
\end{array}$$

Some variations on this …

```
\documentclass{article}

\newcommand{\row}[3]{#1 & #2 & #3}

\begin{document}
\begin{center}
\begin{tabular}{lll}%
\row{1.112}{4.5}{1.12e5} \\
\row{3.2}{-6.134}{2.34e6}
\end{tabular}
\end{center}
\end{document}
```

1.112	4.5	1.12e5
3.2	-6.134	2.34e6

1.112	1.12e5	4.5
3.2	2.34e6	-6.134

Rearrange columns

Limited to 9 arguments (:-((

Obscure tabular environment parameters allow you to adjust column widths, centering in the table cell, etc. But has anyone ever gotten these things to work? `p{1cm}`, etc

Use the siunitx package!

```
\documentclass{article}

\usepackage{siunitx}

\newcommand{\row}[3]{%
   #1 & #3 & #2
}

\begin{document}

\begin{center}
\begin{tabular}{SSS}%
\row{1.112}{4.5}{1.12e5} \\
\row{3.2}{-6.134}{2.34e6}
\end{tabular}
\end{center}

\end{document}
```

1.112	1.12×10^{5}	4.5
3.2	2.34×10^{6}	-6.134

- Alignment at the decimal
- Exponential notation
- Rounding modes
- Easy to adjust column widths,
- Easy to adjust centering
- +/- correctly handled
- Units can be displayed and not mess up alignment

Get around 9 argument limitation using xkeyval package

```
\usepackage{xkeyval}
\usepackage{siunitx}

\makeatletter
\define@key{results}{a}{\gdef\a{#1}}
\define@key{results}{b}{\gdef\b{#1}}
\define@key{results}{c}{\gdef\c{#1}}

\newcommand{\row}[1]{%
  \setkeys{results}{#1}&
  \b & \a & \c
}
\begin{document}
\sisetup{
  round-mode=places,
  round-precision=1,
}
\begin{tabular}{c@{}SSS}
\row{a=1.112e3,   b=4.5,     c=5.66784} \\
\row{a=3.20e3,    b=602.134, c=-51.6} \\
\row{a=0.1456e4,  b=51.44,   c=-105.123} \\
\end{tabular}
```

4.5	1.1×10^{3}	5.7
602.1	3.2×10^{3}	−51.6
51.4	0.1×10^{4}	−105.1

Include simple calculations

```
\usepackage{xkeyval}
\usepackage{siunitx,fp}

\makeatletter
\define@key{results}{a}{\gdef\a{#1}}
\define@key{results}{b}{\gdef\b{#1}}
\define@key{results}{c}{\gdef\c{#1}}
\define@key{temp}{xx}{\gdef\xx{#1}}

\newcommand{\row}[2][xx=-1]{%
  \setkeys{temp}{#1}\setkeys{results}{#2}&
  \b & \a & \FPeval{\xx}{(\b)/(\c)}\xx
}
\begin{document}
\sisetup{
  round-mode=places,
  round-precision=1,
}
\begin{tabular}{c@{}SSS}
\row{a=1.112e3,   b=4.5,     c=5.66784} \\
\row{a=3.20e3,    b=602.134, c=-51.6} \\
\row{a=0.1456e4,  b=51.44,   c=-105.123} \\
\end{tabular}
```

4.5	1.1×10^3	0.8
602.1	3.2×10^3	−11.7
51.4	0.1×10^4	−0.5

Farm to table reproducibility!

Reproducibility and reliability is enhanced when data is more faithfully transferred from source to final archived document.