General Assignment Template

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1 General Math

Basic math examples for convenient copy-pasting

1.1 (a)

Basic multiline equation example.

$$\begin{aligned} a &= b + c \\ &= (b + d) - (d - c) \end{aligned}$$

1.2 (b)

Vectors and matrices.

Column vector square brackets: $\boldsymbol{x} = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$, round brackets: $\vec{v} = \begin{pmatrix} 4 \\ 5 \\ 6 \\ 7 \end{pmatrix}$.

Column vector square brackets: $\boldsymbol{u} = \begin{bmatrix} 1 & 2 & 3 \end{bmatrix}$;

Round brackets: $\vec{w} = \begin{pmatrix} 4 & 5 & 6 & 7 \end{pmatrix}$.

Matrix $A = \begin{bmatrix} a & b & c & d \\ e & f & g & h \\ i & j & k & l \end{bmatrix}$.

Another example $B = \left[\begin{array}{ccc|c} a & b & c & d \\ e & f & g & h \\ i & j & k & l \end{array}\right]$.

1.3 (c)

Sums, limits, integration

$$\sum \frac{1}{k+\sqrt{k}}$$

$$\sum_{k=2}^{\infty} \frac{3^k - 1}{4^k}$$

$$\lim_{k \to \infty} \frac{k^2 + k + 1}{2k^2}$$

$$\int_{-1}^{1} e^x \, dx$$

1.4 (d)

Using `\frac` *and* `\dfrac`*.*

Using `\frac` $\frac{k^2+1}{k^3+1}$ and now using `\dfrac` $\dfrac{k^2+1}{k^3+1}$.

Note that when in "big" equation environment, $$, they give the same result. Avoid using `\dfrac` unless necessary.

2 Graphics

Pictures and everything so exciting

3 Tables

Yep, tables, as the title would suggest

4 Code

Code code code code code

```
Seq = randi(2,1,1000); % generate random sequence of coin flips
k = 0;

% while-loop that runs until the desired sequence, THH, is found
while(Seq(k+1)~=2 || Seq(k+2)~=1 || Seq(k+3)~=1)
    k = k + 1;
end

disp(k) % output how many flips before the sequence THH
```

5 Academic Writing

How to format big chunks of writing

6 Bibliography

Referencing, footnotes, etc