

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

Column vector square brackets:  $\mathbf{u} = [1 \quad 2 \quad 3]$ ;

Round brackets:  $\vec{w} = (4 \quad 5 \quad 6 \quad 7)$ .

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*

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

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

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

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

### 1.4 (d)

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

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

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

## 2 Graphics

*Pictures and everything so exciting*

Here is an example of an image with a caption.

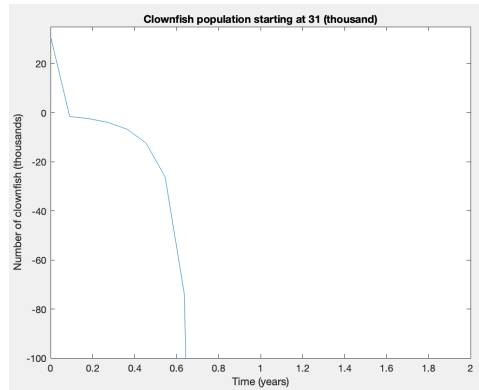
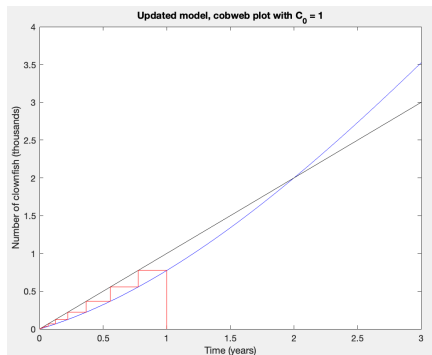
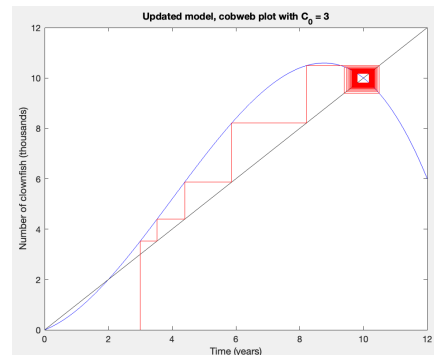


Figure 1: Clownfish model starting at population 31 (thousand).

Here is an example of two images side-by-side, with captions.



(a) Cobweb plot  $C_0 = 1$



(b) Cobweb plot  $C_0 = 3$

Figure 2: Updated model cobweb plots.

## 3 Tables

*Yep, tables, as the title would suggest*

## 4 Code

*Code code code code code*

```

1 Seq = randi(2,1,1000); % generate random sequence of coin flips
2 k = 0;
3
4 % while-loop that runs until the desired sequence, THH, is found
5 while(Seq(k+1)~=2 || Seq(k+2)~=1 || Seq(k+3)~=1)
6     k = k + 1;
7 end
8
9 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*