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* Discussion sections will be recorded *

**Office Hours:** I will hold two fixed office hours per week via Zoom. Please fill out the Doodle poll by Sunday 7pm PST. I will also be available by appointment. Office hours will not be recorded.
**Sum Example**

\[
\sum_{i=1}^{10} i = 1 + 2 + 3 + \ldots + 10
\]

\[
S_1 = \sum_{i=1}^{1} i = 1
\]

\[
S_2 = \sum_{i=1}^{2} i = 1 + 2 \rightarrow S_2 = S_1 + 2
\]

\[
S_3 = S_2 + 3
\]

\[
\vdots
\]

\[
S_{10} = S_9 + 10
\]

**Product Example**

\[
\prod_{i=1}^{10} i = 1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdots 10
\]

\[1\]

\[1 \cdot 2\]

\[1 \cdot 2 \cdot 3\]

\[\vdots\]

**Graphing Example**

Graph \(y = x^2\) on \([0, 2]\)

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

Vector of X values

Vector of Y values
\[ a = 0 \]
\[ \Delta X = \frac{b - a}{N} \quad N = \# \text{slices} \]
\[ X_i = a + i \cdot \Delta X \]
>> 1 + 2
ans =
    3
>> 1 + 2;
>> a = 1
a =
    1
>> b = 2;
>> c = a + b
c =
    3
>> v = [1, 2, 3];
>> u = [4; 5; 6]
u =
    4
    5
    6
>> v
v =
    1   2   3
>> u + v
ans =
       5   6   7
       6   7   8
       7   8   9
>> % u + v is normally undefined, but Matlab has a mind of its own
>> A = [0, 2; 5, -7]
A =
    0   2
    5  -7
>> u(2)
ans =
    5
>> A(1,2)
ans =
    2

>> B = [1; 2, 3];
Error using vertcat
Dimensions of arrays being concatenated are not consistent.

>> u = zeros(1,10)

u =
    0     0     0     0     0     0     0     0     0     0

>> v = zeros(10,1)

v =
    0
    0
    0
    0
    0
    0
    0
    0
    0
    0

>> A = zeros(4,4)

A =
    0     0     0     0
    0     0     0     0
    0     0     0     0
    0     0     0     0

>> A = zeros(4)

A =
    0     0     0     0
    0     0     0     0
    0     0     0     0
    0     0     0     0

>> A = ones(3)

A =
    1     1     1
    1     1     1
    1     1     1

>> A = twos(3)
Unrecognized function or variable 'twos'.

Did you mean:
>> A = ones(3)
A =
    1     1     1
    1     1     1
    1     1     1
>> A = 2*A
A =
    2     2     2
    2     2     2
    2     2     2
>> pi
ans =
    3.1416
>> format long
>> pi
ans =
    3.141592653589793
>> format short
>> pi
ans =
    3.1416
>> sin(0)
ans =
    0
>> sin(pi)
ans =
    1.2246e-16
>> double(pi)
ans =
    3.1416
>> format long
>> sin(pi)
ans =
1.224646799147353e-16

>> format short
>> sumexample
>> sumexample

   sum =

   55

>> sumexample
   55

>> sumexample
   The value of the sum is
   55

>> sumexample
   The value of the sum is
   110

>> sumexample
   The value of the sum is
   165

>> productexample
   The product is
   0

>> productexample
   The product is
   3628800

>> graphingexample
>> graphingexample
>> graphingexample
>> graphingexample
>> graphingexample
>> graphingexample
>> graphingexample
   Error: File: graphingexample.m Line: 17 Column: 21
   Invalid expression. Check for missing multiplication operator, missing or unbalanced delimiters, or other syntax error.
   To construct matrices, use brackets instead of parentheses.

>> graphingexample
>> graphingexample
   Array indices must be positive integers or logical values.

   Error in graphingexample (line 13)
   x(i) = a + i*dx;

>> graphingexample
>> graphingexample
>> graphingexample
>>