Because of a (in this case) different order, x and z are the different vectors.

\[ x = (1, 2, 4, 1, 3, 7, 6) \]

\[ z = (1, 2, 4, 1, 3, 7, 6) \]

Sequence of numbers, separated by commas.

Vector = a finite and ordered sequence of numbers.

Resume at 12:45 pm.

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The length of a vector is the number of elements (i.e., the dimension) of the vector. For a 2-dimensional vector, \( \overrightarrow{v} = (1, 2) \) and \( \overrightarrow{w} = (l, 3) \), the length of \( \overrightarrow{w} \) is \( \sqrt{l^2 + 3^2} \).
Math: \( x = (1, 3, 2, 4) \)

Matlab: \( x = [1, 3, 2, 4] \)

A **scalar** is a 1-dimensional vector

**vector** \( w = [2, 7, 10, \pi] \)

A vector is a \( 1 \times n \) dimensional **Matrix**

(or \( n \times 1 \) dimensional)
Scalars multiply vectors (and matrices).

\[ \begin{bmatrix} 4 \\ 6 \\ 2 \end{bmatrix} \]

3 x 1 vector

\[ \mathbf{v} = \begin{bmatrix} -3 \\ 5 \\ 1 \end{bmatrix} \]

column vectors are

\[ \begin{bmatrix} 4 \\ 2 \\ 1 \end{bmatrix} \]

1 x 3 matrices. These are row vectors, with

\[ \mathbf{x} + \mathbf{y} = (0, 2) \]

\[ \mathbf{y} = (-1, -2) \]

so \[ \mathbf{x} = (1, 4) \]

\[ \mathbf{y} = (-1, -2) \]

vectors add element-wise.
\[ x = \left( 1, 2 \right) \]

\[ \overrightarrow{y} = \left( 0, \frac{3}{2} \right) \]

\[ \overrightarrow{v} = \left( 0, 6 \right) \]

\[ x \ast \overrightarrow{y} = (x, \overrightarrow{y}) = \left( 1, \frac{3}{2} \right) \]

\[ x \ast \overrightarrow{v} = (x, \overrightarrow{v}) = \left( 1, 6 \right) \]
Shorthand in MATLAB

\[ z = [1:2:7] \]

\[ y = [1:3:5:7] \]

\[ x = \frac{y}{2} \]

\[ (x, y) = (4, 8) \]

\[ (\frac{x}{2}, \frac{y}{2}) = (2, 4) \]
\[ z = 2.2 : 1000 \]
\[ W = [2.2 : 1000] \]
\[ \Rightarrow \frac{z}{W} = \frac{2.2}{1000} \]
\[ \text{Best} \]
\[ \text{Method} \]
\[ z = (2.4, 4.8, \ldots, 1000) \]
\[ \frac{z}{4} \]
Method: \[ t = [0: 0.5: 10] \]

Sample period is 0.5

End time is 10
Start time is 0

At ten seconds:
Increment up to end time and keep first at every half-second
Start stopwatch at time zero

\( t = (0, 0.5, 1.0, \ldots, 10.0) \)

Snapshots in time:
Time vector \( \rightarrow \) a list of

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