1. Create a vector of the even whole numbers between 31 and 75.

\[32:2:75\]

2. Let \( x = [2 \ 5 \ 1 \ 6] \).

a. Add 16 to each element

\[x + 16\]

b. Add 3 to just the odd-index elements

\[x(1:2:end) = x(1:2:end) + 3\]

c. Compute the square root of each element

\[\text{sqrt}(x) \text{ or } c = x.^(0.5)\]

d. Compute the square of each element

\[x.^2 \text{ or } d = x.*x\]

3. Let \( x = [3 \ 2 \ 6 \ 8]' \) and \( y = [4 \ 1 \ 3 \ 5]' \) (NB. \( x \) and \( y \) should be column vectors).

a. Add the sum of the elements in \( x \) to \( y \)

\[y + \text{sum}(x)\]

b. Raise each element of \( x \) to the power specified by the corresponding element in \( y \).

\[x.^y\]

c. Divide each element of \( y \) by the corresponding element in \( x \)

\[x./y\]

d. Multiply each element in \( x \) by the corresponding element in \( y \), calling the result "\( z \)".

\[z=x.*y\]

e. Add up the elements in \( z \) and assign the result to a variable called "\( w \)"

\[w = \text{sum}(z)\]
f. Compute $x^*y - w$ and interpret the result

$x^*y - w$ (aynı sonuç)

4. Evaluate the following MATLAB expressions by hand and use MATLAB to check the answers

a. $2 / 2 * 3 = 3$

b. $6 - 2 / 5 + 7 ^ 2 - 1 = 53.6$

c. $10 / 2 \backslash 5 - 3 + 2 * 4 = 6$

d. $3 ^ 2 / 4 = 2.25$

e. $3 ^ 2 ^ 2 = 81$

f. $2 + \text{round}(6 / 9 + 3 * 2) / 2 - 3 = 2.5$

g. $2 + \text{floor}(6 / 9 + 3 * 2) / 2 - 3 = 2$

h. $2 + \text{ceil}(6 / 9 + 3 * 2) / 2 - 3 = 2.5$

5. Create a vector $x$ with the elements,

$$x_n = \frac{(-1)^{n+1}}{2n-1}$$

Add up the elements of the version of this vector that has 100 elements.

```matlab
n = 1:100;
x = (-1).^(n+1) ./ (2*n - 1);
y = sum(x)
```

6. Given $x = [3 \ 1 \ 5 \ 7 \ 9 \ 2 \ 6]$, explain what the following commands "mean" by summarizing the net result of the command.

a. $x(3) = 5$

b. $x(1:7)$

$$3 \ 1 \ 5 \ 7 \ 9 \ 2 \ 6$$

c. $x(1:end)$

$$3 \ 1 \ 5 \ 7 \ 9 \ 2 \ 6$$

d. $x(1:end-1)$

$$3 \ 1 \ 5 \ 7 \ 9 \ 2$$

e. $x(6:-2:1)$

$$2 \ 7 \ 1$$

f. $x([1 \ 6 \ 2 \ 1 \ 1])$

$$3 \ 2 \ 1 \ 3 \ 3$$
g. \( \text{sum}(x) = 33 \)

7. Given the array \( A = [ 2 \ 4 \ 1 \ ; \ 6 \ 7 \ 2 \ ; \ 3 \ 5 \ 9 ] \), provide the commands needed to
   a. assign the first row of \( A \) to a vector called \( x1 \)

\[ x1 = A(1,:) \]

   b. assign the last 2 rows of \( A \) to an array called \( y \)

\[ y = A(\text{end-1:end,:}) \]

   c. compute the sum over the columns of \( A \)

\[ c = \text{sum}(A) \]

   d. compute the sum over the rows of \( A \)

\[ d = \text{sum}(A,2) \text{ or } d = \text{sum}(A')' \]

   e. compute the standard error of the mean of each column of \( A \) (NB. the standard error of the mean is defined as the standard deviation divided by the square root of the number of elements used to compute the mean.)

\[ N = \text{size}(A,1) \]
\[ e = \text{std}(A)/\sqrt{N} \]