Introduction to Computer Programming Using Matlab

A computer program

computation

input → ⊗ → output

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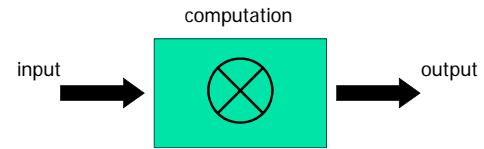
What will be in our first example program (lab 1)?

- **Input**
  - Get trapezoid data from the user
  - Need b1, b2, h
- **Calculation**
  - Just use the formula to calculate (and store) the answer
- **Output**
  - Show the result on the screen

- **Comments**
  - "explanations" for humans; computer ignores comments.

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Input & output

- *variable* = **input**('prompt')

  `h= input('Enter the height: ')`

- **fprintf**('message to print')

  `fprintf('Hello!')`
  `fprintf('Area is %f\n', x)`

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Saving and running a program

- Matlab programs have the filename extension **.m**
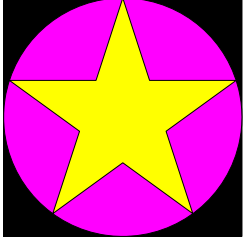- Eg., a Matlab program file may have the name

  `trapezoidArea.m`

- To run a Matlab program with the above name, type in the Command Window the name without the .m extension

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Calling a built-in function

- You only need to know the <u>name</u> of the functions and <u>how to use it</u>
- E.g., to evaluate the sine of 2 radians you type

  `sin(2)`

  i.e., you call the function by its name and give it one single value to work on.
- To use the remainder function, e.g.,

  `rem(315,7)`

  This function needs <u>two</u> values.

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Play with graphics function

```
DrawRect(...)
DrawDisk(...)
DrawStar(...)
```
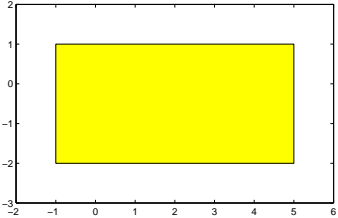
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x and y coordinates
of lower left corner   width   height

```
DrawRect(-1,-2,6,3,'y')
```
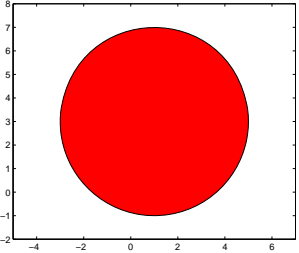color

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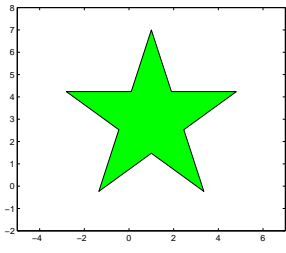x and y coordinates
of the center   radius

```
DrawDisk(1,3,4,'r')
```
color

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x and y coordinates
of the center   "radius"

```
DrawStar(1,3,4,'g')
```
color

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Color Options

White	'w'	
Black	'k'	
Red	'r'	
Blue	'b'	
Green	'g'	
Yellow	'y'	
Magenta	'm'	
Cyan	'c'	

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A general graphics framework

```
% drawDemo
close all
figure
axis equal off
hold on

Code fragment to draw the
objects (rectangle, disk, star)


hold off
```

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