

## 1 Command Window as a Calculator

Calculate the area of a trapezoid whose bases  $b_1$  and  $b_2$  are twice as long as those of the trapezoid drawn on the board. The height  $h$  remains the same.

The area of this trapezoid is \_\_\_\_\_.

## 2 A Simple Program

A program, also called a *script*, contains instructions to the computer (to do calculations). Write a script that

1. prompts the user to input bases  $b_1$  and  $b_2$  and height  $h$  of a trapezoid,
2. calculates the trapezoid's area, and
3. displays the area to the screen.

Save this script as the file `trapezoidArea.m`.

Next *run* the program by typing in the Command Window the script name without the extension `.m`. So type `trapezoidArea` and then press the *Enter* key. Follow the prompt and observe the output.

## 3 MATLAB built-in functions... fun with MATLAB

MATLAB provides numerous built-in variables and functions. For each line below, type the text in the *Command Window* and press `<Enter>` to see what happens. Is the result what you expect? Fill in the blanks below with the screen output for that line.

```
% This is a comment--no action is executed by the computer

% From this point on, read but do not type the text after the % symbol in a line.

clear all % Clear the memory space (this doesn't produce output)

% Variables, constants, and simple calculations:
a= 100 % Look at the Workspace Pane: a VARIABLE called a has been created
b= 99 % Look at the Workspace Pane: a VARIABLE called b has been created

y= a/b % -----

p=(3*2)^2 % -----

q=(3*2)^2; % Did you type the semi-colon? Look at the Workspace Pane: q is
% created but its value is not shown in the Command Window.

x = 2;
y = x^x % -----

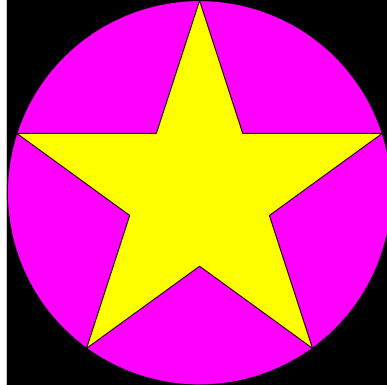
z = y^y % -----

% Built-in functions:
c= sqrt(x)
pi % a built-in variable
d= cos(pi) % -----
f= abs(d)
g= abs(cos(pi)) % -----
h= rem(5,2) % What does function rem do? If you're not sure, try a few more
% examples: rem(9,7), rem(10,6), ... -----
help sqrt
```

## 4 Experiment with Graphics

From the course website (<http://www.cs.cornell.edu/courses/cs1305>), download these four files: `drawDemo.m`, `DrawRect.m`, `DrawDisk.m`, and `DrawStar.m`. Make sure you know where you have stored these files. The *Current Directory* of MATLAB must be set to the folder/directory that contains the downloaded files. You should see the files listed in the *Current Directory Pane*.

Complete the script `drawDemo` display this figure.



Note: You are responsible for understanding the `drawDemo` script only. Don't worry about `DrawRect`, `DrawDisk`, and `DrawStar`; treat them as "black boxes."

## 5 My Flower

Write a script `flower1` to draw this figure. Feel free to experiment with different colors.

