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

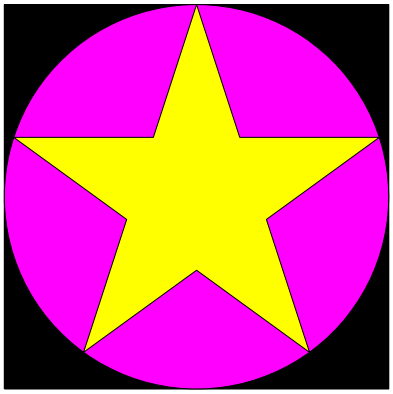
MATLAB provides numerous built-in variables and functions. For each line below, type the text in the *Command Window* and press <*Enter*> to see what happens. Is the result what you expect? Fill in the blanks below with the screen output for that line.

```
% 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` to display this figure.



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

5 Experiment with Graphics

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