## Homework 1

#### Problem 1:

>> x=10; y=17;

>> z=x+y

z = 27

>> z=x\*y

z = 170

>> z=x^3

z = 1000

>> z=(2^5)^2

z = 1024

>> z=2\*x^2 + 3\*y^2

z = 1067

>> z=2\*pi

z = 6.2832

>> z=2\*pi^2

z = 19.7392

>> z=3\*10^8 \* 5\*10^-6

z = 1500

>> z= sqrt(x^2 -4)

z = 9.7980

#### Problem 2:

x=10; % Take x=10.

z = x^2; % 1. Square x

z = z - 12; % 2. Subtract 12 from result of Step 1.

z = sqrt(z); % 3. Take the square root of the result of Step 2.

z = z + 9; % 4. Add 9 to the result of Step 3.

z = z^2 % 5. Square the result of Step 4, and the answer is z.

% z = 337.8550

#### Problem 3:

y = 17; % Take y=17.

x = sqrt(y); % 1. Take the square root of y.

x = x+4; % 2. Add 4 to the result of Step 1.

x = x^2; % 3. Form the square of the result of Step 2.

x = x-8; % 4. Subtract 8 from the result of Step 3.

x = x\*pi % 5. Multiply the result of Step 4 by pi

z = (((sqrt(y)+4)^2)-8) \* pi

% x = 182.1648

% z = 182.1648

#### Problem 4:

A = 1000; % amount deposited at the beginning of each year ($1,000)

r = 0.05; % annual interest rate expressed as a fraction: 5%

percentage = r \* 100;

% F = final value in dollars at the end of N years

fprintf('\nWith an initial amount of $%.2f', A);

fprintf(' and an interest rate of %.0f%% \n', percentage)

for N = 10:10:40 % number of years from 10 to 40 increases by 10 each time

F = A \*(1+r)\* (((1 + r)^N - 1) / r);

% Display the current value of F with formatting

fprintf('The amount is $%.2f ', F);

fprintf('after %d years\n', N);

end

r = 0.10; % annual interest rate expressed as a fraction: 10%

percentage = r \* 100;

% F = final value in dollars at the end of N years

fprintf('\nWith an initial amount of $%.2f', A);

fprintf(' and an interest rate of %.0f%% \n', percentage)

for N = 10:10:40 % number of years from 10 to 40 increases by 10 each time

F = A \*(1+r)\* (((1 + r)^N - 1) / r);

% Display the current value of F with formatting

fprintf('The amount is $%.2f ', F);

fprintf('after %d years\n', N);

end

>> Vermaak\_David\_HWK\_1\_P\_4

With an initial amount of $1000.00 and an interest rate of 5%

The amount is $13206.79 after 10 years

The amount is $34719.25 after 20 years

The amount is $69760.79 after 30 years

The amount is $126839.76 after 40 years

With an initial amount of $1000.00 and an interest rate of 10%

The amount is $17531.17 after 10 years

The amount is $63002.50 after 20 years

The amount is $180943.42 after 30 years

The amount is $486851.81 after 40 years