Exercise1

2007.03.13

1(a) 15%

```
function A=circle_area(r)
% A=circle_area(r)
% r: radius of a circle
% A: area of a circle with radius r
% JM Wu
    A=pi*r^2;
return

>> A=circle_area(10)

A =

  314.1593
```

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1(b) 15%

```
function A=ellipse_area(a,b)
% A=ellipse_area(a,b)
% a: major axis of an ellipse
% b: minor axis of an ellipse
% A: area of an ellipse with major axis a and minor axis b
% CW Huang
    A=pi*a*b/4;
return

>> A=ellipse_area(5,2)

A =

    7.8540
```

~~~~~~

1(c) 15%

```
function A=area(a,b)
% A=area(a,b) : area of an ellipse
% A=area(a) : area of a circle
% Use nargin to check the number of given input arguments
% CW Huang
A=pi*a^2;
if nargin==2
    A=pi*a*b/4;
end
```

```
return
```

```
>> A=area(5,2)

A =

       7.8540

>> A=area(10)

A =

   314.1593
```

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1(d) 15%

```
function y=f(x)
% y=f(x)
% x: a real value
% Use if to check the function value of given value
% CW Huang
if x >= 1
       y=x;
end

if x <= -1
       y=-x;
end

if (-1 < x) & (x < 1)
       y=0;
end
return
```

```
>> y=f(5)

y =

         5

>> y=f(-4)

y =

         4

>> y=f(0.2)
```
~~~~~~

```
y =

         0
```

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1(e) 15%

```
function A=swap(a,b)
% A=swap(a,b) : swap a with b
% a,b : arbitrary two values
% CW Huang
temp=a;
a=b;
b=temp;
A=[a,b];
return

>> A=swap(-4,2)

A =

         2        -4
```

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2 20%

```
% This script asks users to input the radius of a circle .
% A message is given If the input is not positive.
% Call the matlab function that returns the area of a circle.
% Output the circle area .
a=input('Input a the radius of a circle:');
if a < 0
      fprintf(' non-positive input\n');
      break;
end
fprintf(' The radius of a circle is %f\n',a);
A=circle_area(a);
fprintf(' The circle area is %f\n',A);
```

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