Matlab Lesson #3

1. Please review all commands in Matlab Lesson #1 and #2.

2. Comments can be added in each line after the '%' symbol.

3. How to take derivatives

```
help sym/diff                  % getting help

syms x  y  s  t;               % declare x, y, s, t as variables

diff( sin(2*x+3*y+5*s+7*t) )
 % you leave the system to choose the default variable for you

diff( sin(2*x+3*y+5*s+7*t), 's' )
 % this is better, you specify taking partial derivative with respect to 's'

diff( sin(2*x+3*y+5*s+7*t), 2, 's' )
 % taking 2nd partial derivative with respect to 's'

diff( diff( sin(2*x+3*y+5*s+7*t), 2, 's' ), 2, 't')
 % taking 2 's' derivatives and then 2 't' derivatives
```

4. Taylor expansion for multi-variables. Make sure you indicate the variables.
   e.g.,

```
syms x, y;
taylor(exp(x+3*y), [x,y])
```