

**Part A (Matlab Tutorial)**

**Exercise 5:** let  $p(t) = -1 + 3t - 2t^2$  -that is,  $p$  is a polynomial. Use Matlab to compute the value of  $p$  at each of the entries of  $x$ . The first entry of this matrix should be  $p(7)$  since the first entry of  $x$  is 7. The last entry of this matrix should be  $p(2)$  since 2 is the last entry of  $x$

**Solution:**

```
x = [7 1 8 2]
```

```
x =
```

```
7      1      8      2
```

```
p = -1+3*x-2*x.^2
```

```
p =
```

```
-78      0  -105      -3
```

Using the *polyval* function:

```
x = [7 1 8 2]
```

```
x =
```

```
7      1      8      2
```

```
p = [-2 3 -1]
```

```
p =
```

```
-2      3      -1
```

```
polyval(p,x)
```

```
ans =
```

```
-78      0  -105      -3
```

**Exercise 7:** Plot the curves  $y = Ce^x$  for  $C = 1, C = 1/2, C = 0, C = -1/2$  and  $C = -1$  the range  $-1 \leq x \leq 1$  all in the same figure. Add a helpful legend in your plot.

**Solution:**

```
c = [-1:.5:1]
```

```
c =
```

```

-1.0000    -0.5000         0     0.5000     1.0000

```

```

x = [-1:.01:1];
y = c' .* exp(x);
plot(x,y)
legend(num2str(c'))
title(legend,'C =')
xlabel('x axis')
ylabel('y axis')
set(gca,'FontName','Times')
set(gca,'FontSize',12)
title('Plot of $y = Ce^x$')
title('Plot of y = Ce^x')
grid

```

