

CEE 3804 Assignment #8 Solution

Problem 1

Function looks like this:

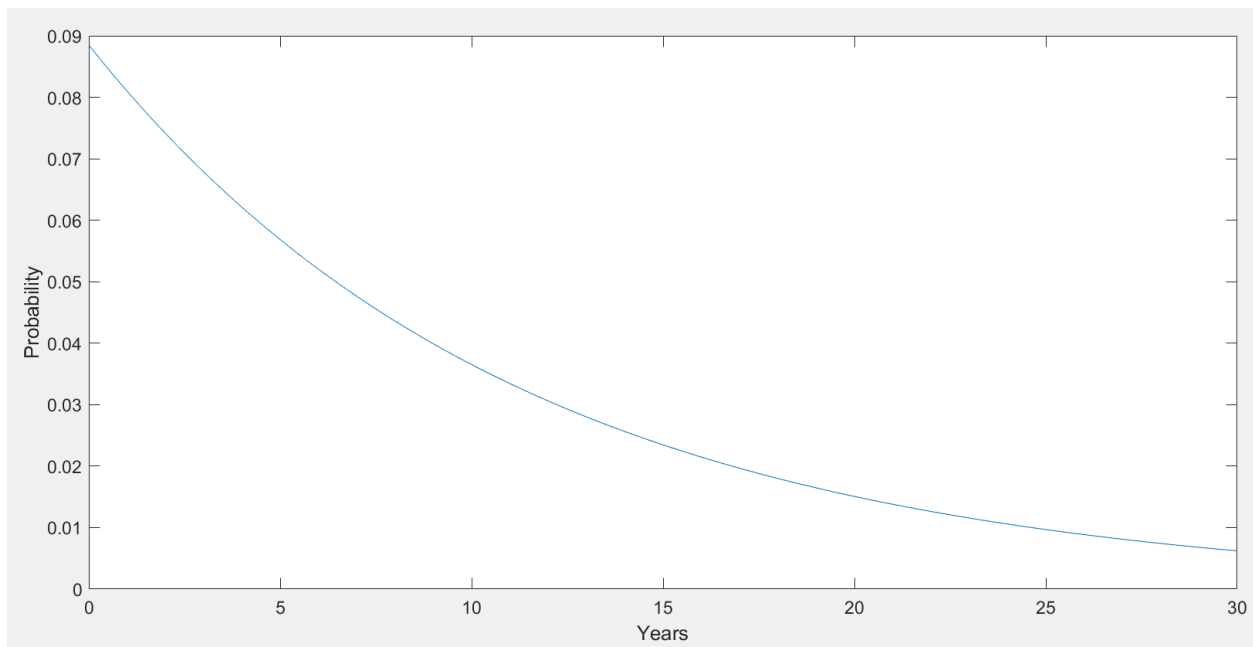
```
function f = negative_exp(x)

    global beta

    f = (1/ beta) * exp(-x/beta);

end
```

With $\beta = 11.3$, the following figure was generated:



For more than 10 years:

```
trapz(10:1:50,negative_exp(10:1:50))
```

```
ans =
```

```
0.4010
```

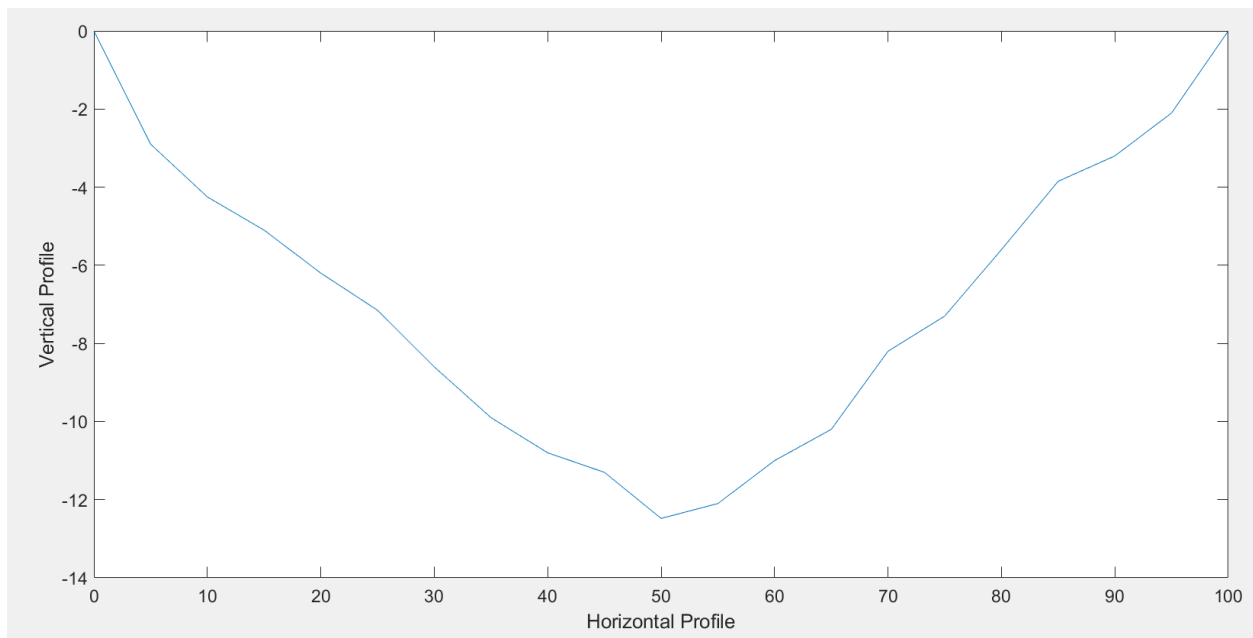
The answer depends on the second year. If you choose the first year to be 0, and the second year to be 10, then the answer will be 1 minus the resulted probability as we are seeking the result for more than 10 years.

```
>> trapz(8:1:14,negative_exp(8:1:14))
```

```
ans =
```

```
0.2031
```

Problem 2



Area Under Curve:

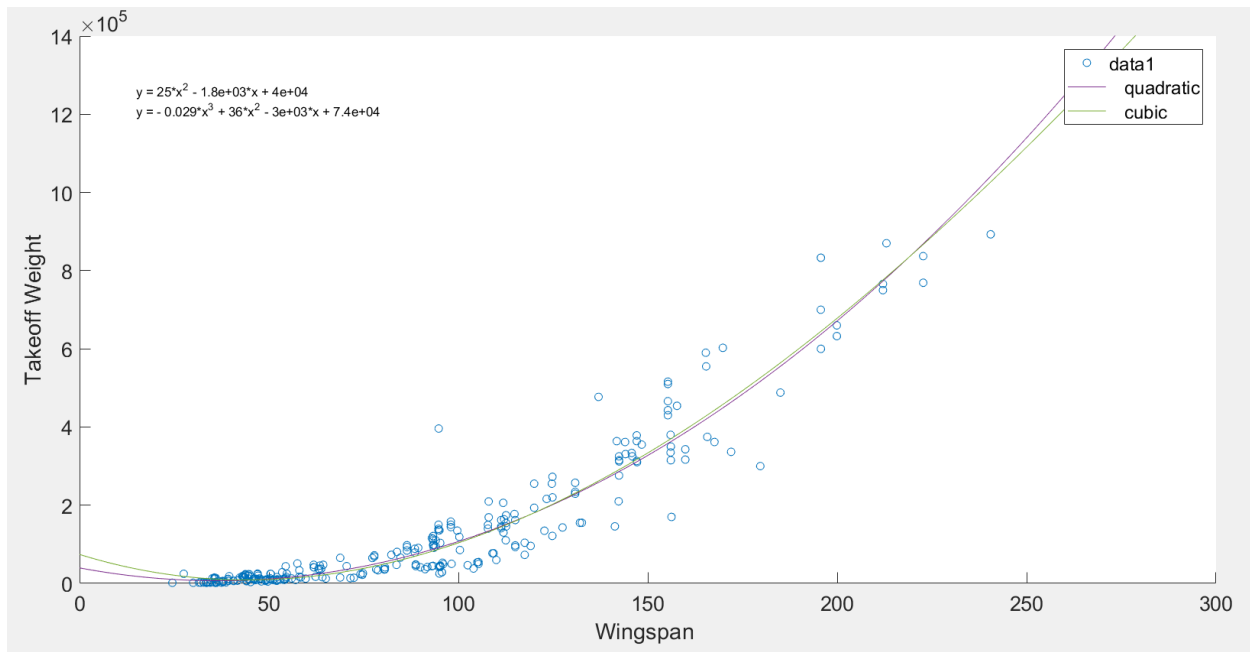
```
>> trapz(waterway.HorizontalCoordinate_meters_,waterway.VerticalProfile_meters_)
```

```
ans =
```

```
-711.1500
```

By using the other method your number should be very close. For the last part you have to subtract it from the entire area to find the dredging amount.

Problem 3



```
Polynomial_2 = polyfit(X,Y,2)
```

```
Polynomial_3= polyfit(X,Y,3)
```

```
Y2 = polyval(Polynomial_2,X)
```

```
Y3 = polyval(Polynomial_3,X)
```

```
SSE2 = sum((Y2-Y).^2)
```

```
SSE3 = sum((Y3-Y).^2)
```

Problem 4

```
function R = resistant(v)

    A = 7.91000; % units are kN
    B = 0.10356; % units are kN s/m
    C = 0.01099; % units are kN s-s/m-m

    R = A + B * v + C * v.^2;

end
```

