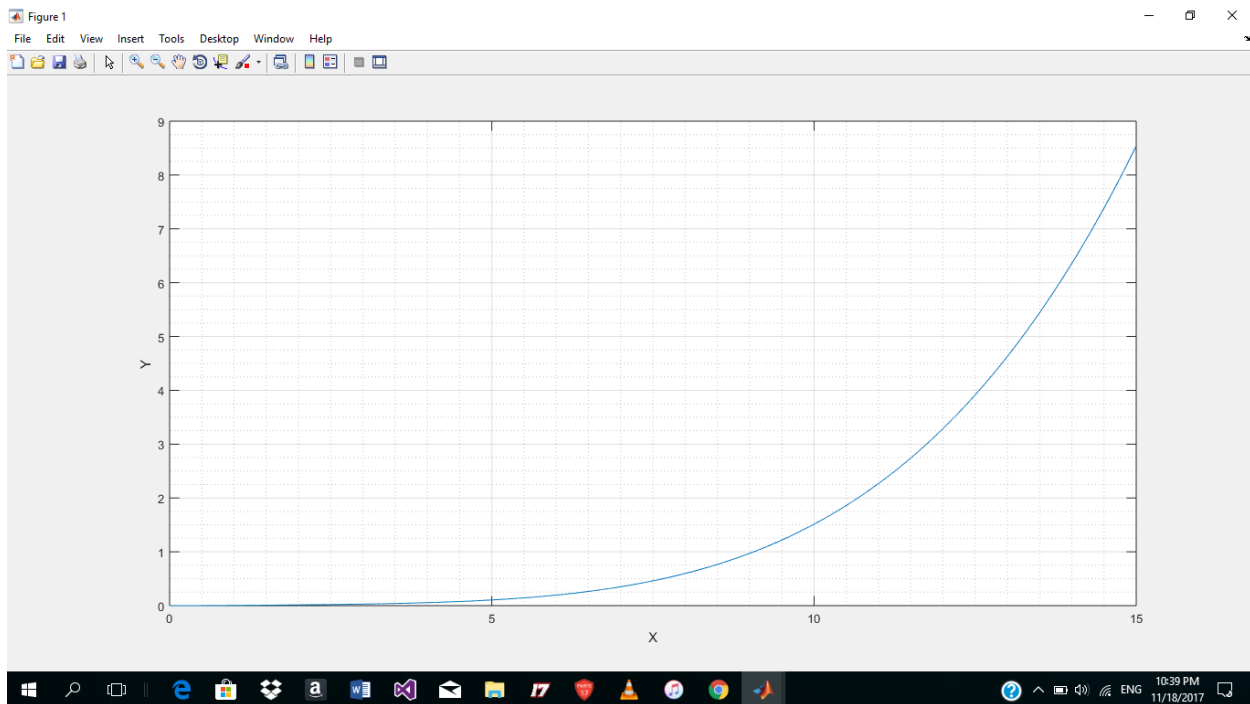


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DEPT: MECHANICAL ENGINEERING  
MATRIC NO. 15/ENG06/030

### QUESTION 1A

```
clc
clear
x = 0:0.001:15
a = x.^2
b = x.^3
c = x.^4
y = ((a)/192) - ((b)/720) + ((c)/4200)
plot(x,y)
xlabel('X')
ylabel('Y')
grid on
grid minor
```



### QUESTION 1B

Formula for n =  $(2.07 \cdot \text{EXP}(4 \cdot A^2)) + (2.93 \cdot \text{EXP}(-3 \cdot F3A^2)) - (12 \cdot A^2^3) + (3 \cdot A^2^2) - (6.5 \cdot A^2)$

time in hours	amount of product, n
0	5
0.01	4.933171716
0.02	4.872878313
0.03	4.819112856
0.04	4.771876383
0.05	4.73117808
0.06	4.697035461
0.07	4.669474552
0.08	4.648530105
0.09	4.634245807
0.1	4.626674511
0.11	4.625878481
0.12	4.631929648
0.13	4.644909877
0.14	4.664911258
0.15	4.692036401
0.16	4.726398758
0.17	4.768122952
0.18	4.817345125
0.19	4.874213312
0.2	4.938887816
0.21	5.011541619
0.22	5.092360802
0.23	5.18154499
0.24	5.27930781
0.25	5.385877384
0.26	5.501496833
0.27	5.626424805
0.28	5.760936034
0.29	5.905321921
0.3	6.059891133
0.31	6.224970243
0.32	6.400904388
0.33	6.588057956
0.34	6.786815309
0.35	6.997581536
0.36	7.220783231
0.37	7.456869315
0.38	7.706311888
0.39	7.969607115
0.4	8.247276159

0.41	8.539866143
0.42	8.847951158
0.43	9.172133316
0.44	9.513043841
0.45	9.871344215
0.46	10.24772736
0.47	10.64291888
0.48	11.05767836
0.49	11.4928007
0.5	11.94911749
0.51	12.42749855
0.52	12.92885334
0.53	13.45413264
0.54	14.00433014
0.55	14.58048418
0.56	15.18367951
0.57	15.81504922
0.58	16.47577659
0.59	17.16709716
0.6	17.89030085
0.61	18.64673409
0.62	19.43780215
0.63	20.26497149
0.64	21.12977224
0.65	22.03380076
0.66	22.97872233
0.67	23.96627394
0.68	24.99826717
0.69	26.07659124
0.7	27.20321615
0.71	28.38019593
0.72	29.60967209
0.73	30.89387712
0.74	32.23513822
0.75	33.63588116
0.76	35.09863422
0.77	36.62603243
0.78	38.22082184
0.79	39.8858641
0.8	41.62414111
0.81	43.43875994
0.82	45.3329579
0.83	47.31010786

0.84	49.37372377
0.85	51.52746638
0.86	53.77514924
0.87	56.12074491
0.88	58.56839144
0.89	61.12239911
0.9	63.78725745
0.91	66.56764254
0.92	69.46842461
0.93	72.49467596
0.94	75.65167919
0.95	78.94493576
0.96	82.38017495
0.97	85.96336309
0.98	89.70071328
0.99	93.59869541
1	97.66404668

