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div-CSE(DS)

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Course-DAA

Exp-01

Aim:-1) Each student randomly chose any ten functions from the aforementioned list.

Program: #include <stdio.h>

#include<math.h>

```c
void
func1 (int n)//n^3
{
  int ans = n * n * n;
  printf("%d\t",ans);
}

void
func2 (int n)//(3/2)^n
{
  float ans = pow (1.5, n);
  printf("%0.3f\t",ans);
}
```

```c
void func3 (int n)//logn^logn
{
  float value= log(n);
  float ans = pow(value,value);
  printf("%0.3f\t",ans);
}

void func4 (int n)//2^logn
{
    float value = log(n);
  float ans = pow (2, value);
  printf("%0.3f\t",ans);
}

void func5 (int n)//n
{
  printf("%d\t",n);
}

void
func6 (int n)//2 ^ (2logn)^0.5
{
  float ans = log(n);
```

```c
   ans = 2* ans ;
   float value = pow(ans,0.5);
   ans = pow(2,value);
   printf("%.3f\t",ans);
}


void
func7 (int n)//n ^ (1/logn)
{
   float ans = log(n);
   float value = pow(ans,-1);
   ans = pow(n,value);
   printf("%.3f\t",ans);
}


void
func8 (int n)//logn
{
   float ans = log (n);
   printf("%0.3f\t",ans);
}


void
func9 (int n)//logn^2
```

```c
{
  float ans = log (n);
  ans = pow (ans, 2);
  printf("%0.3f\t",ans);
}

void
func10 (int n)//(logn)^0.5
{
  float ans = log (n);
  ans = pow (ans, 0.5);
  printf("%0.3f\t",ans);
}

int main()
{
  for (int i = 1; i <= 100; i++)
   {

     func5 (i);


     func1 (i);


     func2 (i);
```

```
        func3 (i);


        func4 (i);




        func6 (i);


        func7 (i);


        func8 (i);


        func9 (i);


        func10 (i);
        printf ("\n");
    }
}
```

Output: 1 1   1.500   1.000   1.000   1.000   1.000
         0.000   0.000   0.000

2   8   2.250   0.776   1.617   2.262   2.718
         0.693   0.480   0.833

3	27	3.375	1.109	2.141	2.794	2.718
		1.099	1.207	1.048		
4	64	5.062	1.573	2.614	3.171	2.718
		1.386	1.922	1.177		
5	125	7.594	2.151	3.051	3.468	2.718
		1.609	2.590	1.269		
6	216	11.391	2.843	3.462	3.714	2.718
		1.792	3.210	1.339		
7	343	17.086	3.653	3.853	3.925	2.718
		1.946	3.787	1.395		
8	512	25.629	4.583	4.226	4.111	2.718
		2.079	4.324	1.442		
9	729	38.443	5.639	4.586	4.276	2.718
		2.197	4.828	1.482		
10	1000	57.665	6.824	4.933	4.426	2.718
		2.303	5.302	1.517		
11	1331	86.498	8.143	5.270	4.563	2.718
		2.398	5.750	1.549		
12	1728	129.746	9.601	5.598	4.689	2.718
		2.485	6.175	1.576		
13	2197	194.620	11.201	5.917	4.806	2.718
		2.565	6.579	1.602		
14	2744	291.929	12.949	6.229	4.916	2.718
		2.639	6.965	1.625		
15	3375	437.894	14.848	6.534	5.018	2.718
		2.708	7.334	1.646		
16	4096	656.841	16.902	6.833	5.115	2.718
		2.773	7.687	1.665		

17	4913	985.261	19.116	7.127	5.207	2.718	2.833	8.027	1.683
18	5832	1477.892	21.495	7.415	5.294	2.718	2.890	8.354	1.700
19	6859	2216.838	24.041	7.698	5.377	2.718	2.944	8.670	1.716
20	8000	3325.257	26.759	7.976	5.456	2.718	2.996	8.974	1.731
21	9261	4987.885	29.654	8.251	5.531	2.718	3.045	9.269	1.745
22	10648	7481.828	32.729	8.521	5.604	2.718	3.091	9.555	1.758
23	12167	11222.741	35.989	8.788	5.673	2.718	3.135	9.831	1.771
24	13824	16834.111	39.436	9.051	5.740	2.718	3.178	10.100	1.783
25	15625	25251.168	43.076	9.311	5.805	2.718	3.219	10.361	1.794
26	17576	37876.754	46.912	9.567	5.867	2.718	3.258	10.615	1.805
27	19683	56815.129	50.948	9.821	5.928	2.718	3.296	10.863	1.815
28	21952	85222.695	55.189	10.071	5.986	2.718	3.332	11.104	1.825
29	24389	127834.039	59.636	10.319	6.042	2.718	3.367	11.339	1.835
30	27000	191751.062	64.296	10.565	6.097	2.718	3.401	11.568	1.844

| 31 | 29791 | 287626.594 | 69.171 | 10.808 | 6.150 |
| | 2.718 | 3.434 | 11.792 | 1.853 | |

| 32 | 32768 | 431439.875 | 74.266 | 11.048 | 6.202 |
| | 2.718 | 3.466 | 12.011 | 1.862 | |

| 33 | 35937 | 647159.812 | 79.583 | 11.286 | 6.252 |
| | 2.718 | 3.497 | 12.226 | 1.870 | |

| 34 | 39304 | 970739.750 | 85.128 | 11.522 | 6.302 |
| | 2.718 | 3.526 | 12.435 | 1.878 | |

| 35 | 42875 | 1456109.625 | 90.903 | 11.756 | 6.349 |
| | 2.718 | 3.555 | 12.641 | 1.886 | |

| 36 | 46656 | 2184164.500 | 96.912 | 11.988 | 6.396 |
| | 2.718 | 3.584 | 12.842 | 1.893 | |

| 37 | 50653 | 3276246.500 | 103.160 | 12.218 | 6.441 |
| | 2.718 | 3.611 | 13.039 | 1.900 | |

| 38 | 54872 | 4914370.000 | 109.649 | 12.446 | 6.486 |
| | 2.718 | 3.638 | 13.232 | 1.907 | |

| 39 | 59319 | 7371555.000 | 116.385 | 12.672 | 6.529 |
| | 2.718 | 3.664 | 13.422 | 1.914 | |

| 40 | 64000 | 11057332.000 | 123.369 | 12.896 | 6.571 |
| | 2.718 | 3.689 | 13.608 | 1.921 | |

| 41 | 68921 | 16585998.000 | 130.606 | 13.119 | 6.613 |
| | 2.718 | 3.714 | 13.791 | 1.927 | |

| 42 | 74088 | 24878998.000 | 138.100 | 13.340 | 6.653 |
| | 2.718 | 3.738 | 13.970 | 1.933 | |

| 43 | 79507 | 37318496.000 | 145.854 | 13.559 | 6.693 |
| | 2.718 | 3.761 | 14.147 | 1.939 | |

| 44 | 85184 | 55977744.000 | 153.872 | 13.777 | 6.732 |
| | 2.718 | 3.784 | 14.320 | 1.945 | |

| 45 | 91125 | 83966616.000 | 162.157 | 13.993 | 6.770 |
| | 2.718 | 3.807 | 14.491 | 1.951 | |

| 46 | 97336 | 125949928.000 | 170.714 | 14.208 | 6.808 |
| | 2.718 | 3.829 | 14.658 | 1.957 | |

| 47 | 103823 | 188924896.000 | 179.545 | 14.421 | 6.844 |
| | 2.718 | 3.850 | 14.824 | 1.962 | |

| 48 | 110592 | 283387328.000 | 188.655 | 14.633 | 6.881 |
| | 2.718 | 3.871 | 14.986 | 1.968 | |

| 49 | 117649 | 425080992.000 | 198.047 | 14.844 | 6.916 |
| | 2.718 | 3.892 | 15.146 | 1.973 | |

| 50 | 125000 | 637621504.000 | 207.725 | 15.053 | 6.951 |
| | 2.718 | 3.912 | 15.304 | 1.978 | |

| 51 | 132651 | 956432256.000 | 217.691 | 15.262 | 6.985 |
| | 2.718 | 3.932 | 15.459 | 1.983 | |

| 52 | 140608 | 1434648320.000 | 227.951 | 15.468 | 7.018 |
| | 2.718 | 3.951 | 15.612 | 1.988 | |

| 53 | 148877 | 2151972608.000 | 238.506 | 15.674 | 7.051 |
| | 2.718 | 3.970 | 15.763 | 1.993 | |

| 54 | 157464 | 3227958784.000 | 249.362 | 15.878 | 7.084 |
| | 2.718 | 3.989 | 15.912 | 1.997 | |

| 55 | 166375 | 4841938432.000 | 260.521 | 16.082 | 7.116 |
| | 2.718 | 4.007 | 16.059 | 2.002 | |

| 56 | 175616 | 7262907392.000 | 271.987 | 16.284 | 7.147 |
| | 2.718 | 4.025 | 16.203 | 2.006 | |

| 57 | 185193 | 10894361600.000 | 283.764 | 16.485 | 7.178 |
| | 2.718 | 4.043 | 16.346 | 2.011 | |

| 58 | 195112 | 16341541888.000 | 295.854 | 16.685 | 7.209 |
| | 2.718 | 4.060 | 16.487 | 2.015 | |

59	205379	24512313344.000	308.262	16.883	7.239
	2.718	4.078 16.626	2.019		
60	216000	36768468992.000	320.992	17.081	7.268
	2.718	4.094 16.764	2.023		
61	226981	55152701440.000	334.046	17.278	7.297
	2.718	4.111 16.899	2.028		
62	238328	82729058304.000	347.428	17.474	7.326
	2.718	4.127 17.033	2.032		
63	250047	124093579264.000	361.141	17.669	7.354
	2.718	4.143 17.166	2.035		
64	262144	186140377088.000	375.190	17.863	7.382
	2.718	4.159 17.296	2.039		
65	274625	279210557440.000	389.578	18.056	7.410
	2.718	4.174 17.426	2.043		
66	287496	418815836160.000	404.308	18.248	7.437
	2.718	4.190 17.553	2.047		
67	300763	628223770624.000	419.383	18.439	7.464
	2.718	4.205 17.679	2.051		
68	314432	942335655936.000	434.807	18.629	7.490
	2.718	4.220 17.804	2.054		
69	328509	1413503516672.000	450.584	18.819	7.516
	2.718	4.234 17.928	2.058		
70	343000	2120255143936.000	466.717	19.007	7.542
	2.718	4.248 18.050	2.061		
71	357911	3180382650368.000	483.210	19.195	7.568
	2.718	4.263 18.170	2.065		
72	373248	4770574106624.000	500.066	19.382	7.593
	2.718	4.277 18.290	2.068		

73	389017	7155861159936.000	517.288	19.568	7.618	2.718	4.290	18.408	2.071
74	405224	10733792264192.000	534.879	19.754	7.642	2.718	4.304	18.525	2.075
75	421875	16100687347712.000	552.845	19.939	7.666	2.718	4.317	18.641	2.078
76	438976	24151031021568.000	571.186	20.122	7.690	2.718	4.331	18.755	2.081
77	456533	36226547580928.000	589.908	20.306	7.714	2.718	4.344	18.869	2.084
78	474552	54339821371392.000	609.015	20.488	7.737	2.718	4.357	18.981	2.087
79	493039	81509729959936.000	628.507	20.670	7.761	2.718	4.369	19.092	2.090
80	512000	122264599134208.000	648.391	20.851	7.783	2.718	4.382	19.202	2.093
81	531441	183396898701312.000	668.669	21.031	7.806	2.718	4.394	19.311	2.096
82	551368	275095339663360.000	689.343	21.211	7.829	2.718	4.407	19.419	2.099
83	571787	412643009495040.000	710.419	21.390	7.851	2.718	4.419	19.526	2.102
84	592704	618964514242560.000	731.899	21.568	7.873	2.718	4.431	19.632	2.105
85	614125	928446771363840.000	753.787	21.746	7.894	2.718	4.443	19.737	2.108
86	636056	1392670123491328.000	776.085	21.923	7.916	2.718	4.454	19.841	2.111

| 87 | 658503 | 2089005252345856.000 | 798.799 | 22.099 |
| | 7.937 | 2.718 | 4.466 | 19.944 | 2.113 |

| 88 | 681472 | 3133508012736512.000 | 821.930 | 22.275 |
| | 7.958 | 2.718 | 4.477 | 20.047 | 2.116 |

| 89 | 704969 | 4700261884887040.000 | 845.483 | 22.450 |
| | 7.979 | 2.718 | 4.489 | 20.148 | 2.119 |

| 90 | 729000 | 7050392827330560.000 | 869.460 | 22.624 |
| | 8.000 | 2.718 | 4.500 | 20.248 | 2.121 |

| 91 | 753571 | 10575589240995840.000 | 893.865 | 22.798 |
| | 8.020 | 2.718 | 4.511 | 20.348 | 2.124 |

| 92 | 778688 | 15863383324622848.000 | 918.702 | 22.972 |
| | 8.040 | 2.718 | 4.522 | 20.447 | 2.126 |

| 93 | 804357 | 23795076597547008.000 | 943.973 | 23.145 |
| | 8.060 | 2.718 | 4.533 | 20.544 | 2.129 |

| 94 | 830584 | 35692612748836864.000 | 969.683 | 23.317 |
| | 8.080 | 2.718 | 4.543 | 20.642 | 2.132 |

| 95 | 857375 | 53538919123255296.000 | 995.835 | 23.488 |
| | 8.100 | 2.718 | 4.554 | 20.738 | 2.134 |

| 96 | 884736 | 80308380832366592.000 | 1022.432 | 23.660 |
| | 8.119 | 2.718 | 4.564 | 20.833 | 2.136 |

| 97 | 912673 | 120462571248549888.000 | 1049.477 | 23.830 |
| | 8.139 | 2.718 | 4.575 | 20.928 | 2.139 |

| 98 | 941192 | 180693861167792128.000 | 1076.974 | 24.000 |
| | 8.158 | 2.718 | 4.585 | 21.022 | 2.141 |

| 99 | 970299 | 271040783161753600.000 | 1104.927 | 24.170 |
| | 8.177 | 2.718 | 4.595 | 21.115 | 2.144 |

| 100 | 1000000 | 406561191922499584.000 | 1133.338 | 24.339 |
| | 8.196 | 2.718 | 4.605 | 21.208 | 2.146 |

Graph:
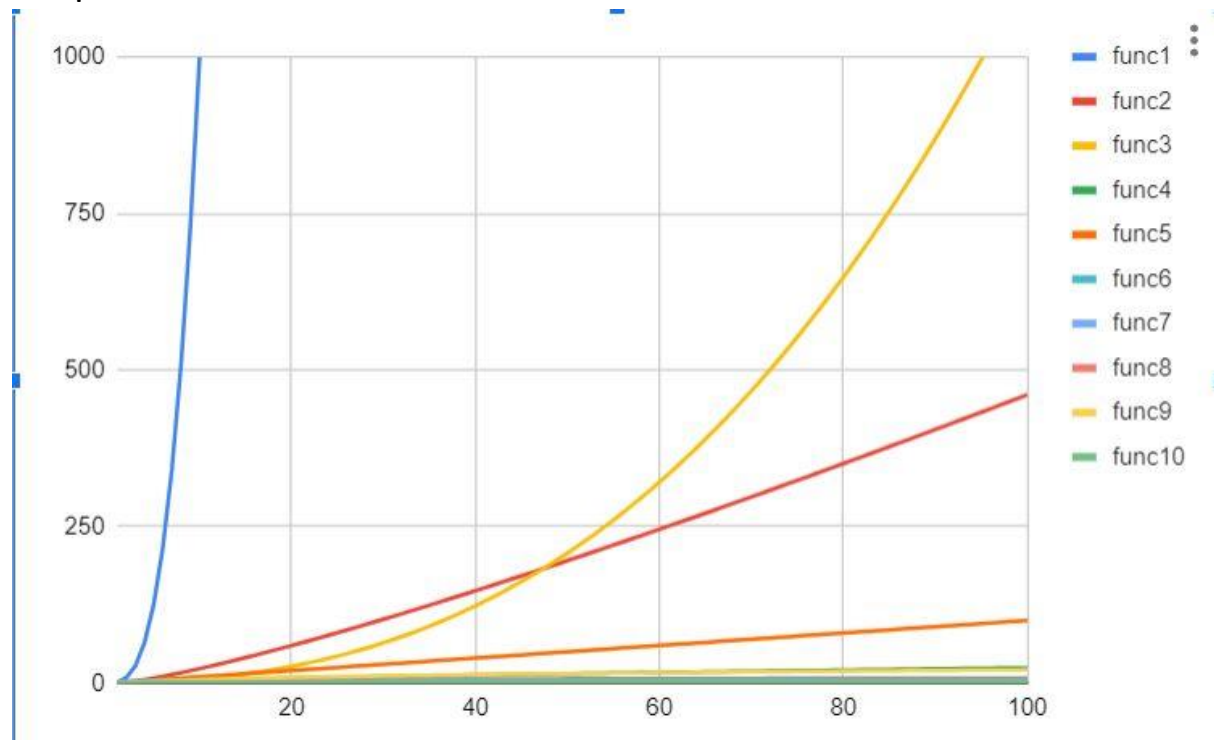
Conclusion: From this experiment, I have learned that how to plot a graph and some basic concepts of graph. Also revise some basic concepts of C language like power function.