

```

! E((x^n)/(n!))
Sum = 1+(x/A)
! 1+E((x^n)/(n!))
Expx = EXP(b)
! (e^x)
Write(*,*) c, x, A, d, Sum, Expx

```

END DO

```

END PROGRAM InfiniteSeriesjlh1067@SCID15-LAB07L:~/engr225/lab6> gfortran infs.f90
jlh1067@SCID15-LAB07L:~/engr225/lab6> ./a.out

```

Enter number of iterations (1-100).

10

Enter value of x (0 < x < 1).

0.08

| n  | x^n                     | n!      | (x^n)/(n!)              | Sum of Values     | e^x               |
|----|-------------------------|---------|-------------------------|-------------------|-------------------|
| 1  | 1.0737418240000001E-011 | 1       | 1.0737418240000001E-011 | 1.000000000107374 | 1.000000000107374 |
| 2  | 1.0737418240000001E-011 | 2       | 5.3687091200000005E-012 | 1.000000000053688 | 1.000000000053688 |
| 3  | 1.0737418240000001E-011 | 6       | 1.7895697066666668E-012 | 1.000000000017897 | 1.000000000017897 |
| 4  | 1.0737418240000001E-011 | 24      | 4.4739242666666671E-013 | 1.000000000004474 | 1.000000000004474 |
| 5  | 1.0737418240000001E-011 | 120     | 8.9478485333333342E-014 | 1.000000000000895 | 1.000000000000895 |
| 6  | 1.0737418240000001E-011 | 720     | 1.4913080888888891E-014 | 1.000000000000149 | 1.000000000000149 |
| 7  | 1.0737418240000001E-011 | 5040    | 2.1304401269841271E-015 | 1.000000000000022 | 1.000000000000022 |
| 8  | 1.0737418240000001E-011 | 40320   | 2.6630501587301589E-016 | 1.000000000000002 | 1.000000000000002 |
| 9  | 1.0737418240000001E-011 | 362880  | 2.9589446208112877E-017 | 1.000000000000000 | 1.000000000000000 |
| 10 | 1.0737418240000001E-011 | 3628800 | 2.9589446208112877E-018 | 1.000000000000000 | 1.000000000000000 |

```

jlh1067@SCID15-LAB07L:~/engr225/lab6> ./a.out

```

Enter number of iterations (1-100).

101

Number over 100, enter level of tolerance (0.00001 < tolerance < 0.1).

.2021

STOP Levels must be: 0.00001 < tolerance < 0.1

```

jlh1067@SCID15-LAB07L:~/engr225/lab6> ./a.out

```

Enter number of iterations (1-100).

101

Number over 100, enter level of tolerance (0.00001 < tolerance < 0.1).

.0001

Enter value of x (0 < x < 1).

.08

| n | x^n | n! | (x^n)/(n!) | Sum of Values | e^x |
|---|-----|----|------------|---------------|-----|
|---|-----|----|------------|---------------|-----|

|                    |    |                         |             |                          |                    |
|--------------------|----|-------------------------|-------------|--------------------------|--------------------|
| 1.0832870676749586 | 1  | 1.6296287810675904E-111 | 1           | 1.6296287810675904E-111  | 1.0000000000000000 |
| 1.0832870676749586 | 2  | 1.6296287810675904E-111 | 2           | 8.1481439053379520E-112  | 1.0000000000000000 |
| 1.0832870676749586 | 3  | 1.6296287810675904E-111 | 6           | 2.7160479684459842E-112  | 1.0000000000000000 |
| 1.0832870676749586 | 4  | 1.6296287810675904E-111 | 24          | 6.7901199211149604E-113  | 1.0000000000000000 |
| 1.0832870676749586 | 5  | 1.6296287810675904E-111 | 120         | 1.3580239842229920E-113  | 1.0000000000000000 |
| 1.0832870676749586 | 6  | 1.6296287810675904E-111 | 720         | 2.2633733070383200E-114  | 1.0000000000000000 |
| 1.0832870676749586 | 7  | 1.6296287810675904E-111 | 5040        | 3.2333904386261713E-115  | 1.0000000000000000 |
| 1.0832870676749586 | 8  | 1.6296287810675904E-111 | 40320       | 4.0417380482827141E-116  | 1.0000000000000000 |
| 1.0832870676749586 | 9  | 1.6296287810675904E-111 | 362880      | 4.4908200536474607E-117  | 1.0000000000000000 |
| 1.0832870676749586 | 10 | 1.6296287810675904E-111 | 3628800     | 4.4908200536474603E-118  | 1.0000000000000000 |
| 1.0832870676749586 | 11 | 1.6296287810675904E-111 | 39916800    | 4.0825636851340546E-119  | 1.0000000000000000 |
| 1.0832870676749586 | 12 | 1.6296287810675904E-111 | 479001600   | 3.4021364042783789E-120  | 1.0000000000000000 |
| 1.0832870676749586 | 13 | 1.6296287810675904E-111 | 1932053504  | 8.4346979920261584E-121  | 1.0000000000000000 |
| 1.0832870676749586 | 14 | 1.6296287810675904E-111 | 1278945280  | 1.2741974238863374E-120  | 1.0000000000000000 |
| 1.0832870676749586 | 15 | 1.6296287810675904E-111 | 2004310016  | 8.1306223491305972E-121  | 1.0000000000000000 |
| 1.0832870676749586 | 16 | 1.6296287810675904E-111 | 2004189184  | 8.1311125420562617E-121  | 1.0000000000000000 |
| 1.0832870676749586 | 17 | 1.6296287810675904E-111 | -288522240  | -5.6481912141940614E-120 | 1.0000000000000000 |
| 1.0832870676749586 | 18 | 1.6296287810675904E-111 | -898433024  | -1.8138567233561423E-120 | 1.0000000000000000 |
| 1.0832870676749586 | 19 | 1.6296287810675904E-111 | 109641728   | 1.4863216868194475E-119  | 1.0000000000000000 |
| 1.0832870676749586 | 20 | 1.6296287810675904E-111 | -2102132736 | -7.7522639420405779E-121 | 1.0000000000000000 |
| 1.0832870676749586 | 21 | 1.6296287810675904E-111 | -1195114496 | -1.3635754452999208E-120 | 1.0000000000000000 |
| 1.0832870676749586 | 22 | 1.6296287810675904E-111 | -522715136  | -3.1176230968517249E-120 | 1.0000000000000000 |
| 1.0832870676749586 | 23 | 1.6296287810675904E-111 | 862453760   | 1.8895259742013190E-120  | 1.0000000000000000 |
| 1.0832870676749586 | 24 | 1.6296287810675904E-111 | -775946240  | -2.1001825861899793E-120 | 1.0000000000000000 |
| 1.0832870676749586 | 25 | 1.6296287810675904E-111 | 2076180480  | 7.8491672413160850E-121  | 1.0000000000000000 |
| 1.0832870676749586 | 26 | 1.6296287810675904E-111 | -1853882368 | -8.7903569783969726E-121 | 1.0000000000000000 |
| 1.0832870676749586 | 27 | 1.6296287810675904E-111 | 1484783616  | 1.0975530464552153E-120  | 1.0000000000000000 |

|    |                         |             |                          |                    |                    |
|----|-------------------------|-------------|--------------------------|--------------------|--------------------|
| 28 | 1.6296287810675904E-111 | -1375731712 | -1.1845542025766652E-120 | 1.0000000000000000 | 1.0832870676749586 |
| 29 | 1.6296287810675904E-111 | -1241513984 | -1.3126141163687370E-120 | 1.0000000000000000 | 1.0832870676749586 |
| 30 | 1.6296287810675904E-111 | 1409286144  | 1.1563505310867447E-120  | 1.0000000000000000 | 1.0832870676749586 |
| 31 | 1.6296287810675904E-111 | 738197504   | 2.2075782866201487E-120  | 1.0000000000000000 | 1.0832870676749586 |
| 32 | 1.6296287810675904E-111 | -2147483648 | -7.5885503602567613E-121 | 1.0000000000000000 | 1.0832870676749586 |
| 33 | 1.6296287810675904E-111 | -2147483648 | -7.5885503602567613E-121 | 1.0000000000000000 | 1.0832870676749586 |
| 34 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 35 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 36 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 37 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 38 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 39 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 40 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 41 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 42 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 43 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 44 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 45 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 46 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 47 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 48 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 49 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 50 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 51 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 52 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 53 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 54 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 55 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 56 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 57 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 58 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 59 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 60 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 61 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 62 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 63 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 64 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 65 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 66 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 67 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 68 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 69 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 70 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 71 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 72 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 73 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 74 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |
| 75 | 1.6296287810675904E-111 | 0           | Infinity                 | Infinity           | 1.0832870676749586 |

|     |                         |   |          |          |                    |
|-----|-------------------------|---|----------|----------|--------------------|
| 76  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 77  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 78  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 79  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 80  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 81  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 82  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 83  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 84  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 85  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 86  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 87  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 88  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 89  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 90  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 91  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 92  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 93  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 94  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 95  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 96  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 97  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 98  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 99  | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 100 | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |
| 101 | 1.6296287810675904E-111 | 0 | Infinity | Infinity | 1.0832870676749586 |

jlh1067@SCID15-LAB07L:~/engr225/lab6> exit

exit

Script done, file is infs

jlh1067@SCID15-LAB07L:~/engr225/lab6>