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Write a program in C to solve the following transcendental equation using newton Raphson method. and correct the result to 3 decimal places:

→ Algorithm for Newton Raphson method.

1. Start.
2. Read x
3. Read e
4. $x = x_0$
5. $x_0 = x_0 - f(x_0)/f_1(x_0)$
6. if $|x - x_0| < e$, goto step 7, else goto step 4.
7. print x.
8. Stop.

→ program for newton raphson method.

```
/* Program for Newton-Raphson method */
# include <stdio.h>
# include <math.h>
float f(float z)
{
  return(z*exp(z)-1);
}
float f1(float z)
  { return (z*exp(z) - exp(z));
  }
int main()
{ float x0, x, e;
```

```
Printf (" Enter the value of the initial guess of root:");
scanf ("%f", &x0);
Printf (" Enter the error value:");
scanf ("%f", &e);
do
 {
   x = x0;
   x0 = x0 - f(x0) / f1(x0);
 }
while (fabs (x-x0) > e);
printf ("one real root of the equation is:%03f", x);
}.
```

output

Enter the value of the initial guess of root : -2.
Enter the error value : 0.0001
one real root of the equation is : -1.#IO