

```
/*
```

```
This is a program to find out the derivative of  $\sin(x)$  with respect to  $x$ .
```

```
This program is created by Mohammad Sazzad Hossain.
```

```
*/
```

```
# include <iostream.h>
```

```
# include <math.h>
```

```
# include <stdio.h>
```

```
int main (){
```

```
float ini = 0, fin = 0, interval = .01;
```

```
float derivative, pi, real;
```

```
FILE *result; // Result will be found in the result.txt
```

```
result = fopen ("\\result.txt","w");
```

```
pi = 4 * atan (1);
```

```
do {
```

```
derivative = (sin (ini + interval) - sin (ini)) / interval;
```

```
real = cos (ini);
```

```
cout << derivative << endl;
```

```
fprintf (result, "%f\t%f\t%f\n", ini, derivative, real);
```

```
ini += interval;
```

```
}while (ini <= 2 * pi);
```

```
fclose (result);
```

```
return 0;
```

```
}
```