

Hw4.

1.

```
Composite Trapezoidal: 0.3961475922149011
Composite Simpson's   : 0.38566359602374456
Composite Midpoint    : 0.38080479837729303
```

2.

```
=== Gaussian Quadrature ===
Exact Value: 0.192259357733
n = 3 | Approx = 0.192259377257 | Error = 1.95e-08
n = 4 | Approx = 0.192259357805 | Error = 7.21e-11
```

3.

```
=== 題目 3 ===
3a. Simpson's Result : 0.511987544012
3b. Gaussian Result  : 0.511865539945
3c. Exact Value (dblquad): 0.511844635311
Simpson Error        : 1.43e-04
Gaussian Error       : 2.09e-05
```

4.

```
a.
Simpson Result : 0.525928890863
Exact (quad)   : 0.528408081227
Error          : 2.48e-03

b.
Simpson Result : 0.274481612772
Exact (quad)   : 0.286529537441
Error          : 1.20e-02
```