Note: Show all your operations in detail. The solutions that do not have enough details will be graded with zero points.

1. (P.180 Q.6c) Use the most accurate three point formula to determine derivative of $f(x)$ at each point in the following table.

x	$f(x)$
1.1	1.52918
1.2	1.64024
1.3	1.70470
1.4	1.71277

2. (P.200 Q.2a-6a-10a) Approximate the following integral

$$\int_{-0.25}^{0.25} \cos^2(x)dx$$

using

   (a) Trapezoidal rule,

   (b) Simpson's rule,

   (c) Midpoint rule.

3. (P.208 Q.2a-4a-6a) Approximate the following integral

$$\int_{-0.5}^{0.5} \cos^2(x)dx$$

using

   (a) Composite trapezoidal rule with $n = 4$,

   (b) Composite Simpson's rule with $n = 4$,

   (c) Composite midpoint rule with $n + 2 = 4 + 2 = 6$ subintervals.