MA 341 – Review Assignment 4

Question 1

Write this expression in the standard form $(a+bi)$. Verify your results using a graphing utility.

$$(1+i)^3$$

Question 2

Perform the indicated operations and express your answer in the form $(a+bi)$.

$$\sqrt{-81}$$

Question 3

Perform the indicated operations and express your answer in the form $(a+bi)$.

$$\sqrt{(8+4i)(4i-3)}$$

Question 4

Evaluate the integral.

$$\int t^3 e^t \, dt$$

Question 5

Evaluate the integral.

$$\int_1^4 \sqrt{t} \ln t \, dt$$

Question 6

First make a substitution. Then use integration by parts to evaluate the integral.

$$\int x^5 \cos(x^3)\, dx$$

Question 7

Evaluate the integral.

$$\int \frac{x^2 + 2x - 1}{x^3 - x}\, dx$$

Question 8

Evaluate the integral.

$$\int \frac{2x^2 + 5}{(x^2 + 1)(x^2 + 4)}\, dx$$

Question 9

Use Part 1 of the Fundamental Theorem of Calculus to find the derivative of the function.

$$h(x) = \int_0^{x^2} \sqrt{1 + r^3}\, dr$$

Question 10

Evaluate the indefinite integral.

$$\int \frac{\sin x}{1 + \cos^2 x}\, dx$$