HW 9

April 15, 2016

Problem 1. Calculate

$$\int \frac{1}{x^2 + 6x + 13} \, dx \tag{1}$$

Using trigonometric substitution. You may use the trigonometric integral results we have already discussed last week.

Problem 2. Calculate

$$\int \frac{1}{\sqrt{4x^2 + 8x + 3}} \, dx \tag{2}$$

Using trigonometric substitution. You may use the trigonometric integral results we have already discussed last week.

Problem 3. Decompose

$$\frac{x^3 + 10x^2 + 27x + 28}{(x + 2)^2(x^2 + 2x + 3)} \tag{3}$$

into partial fractions using the general form we gave in class.

Problem 4. Decompose

$$\frac{2x^2 + 13x + 30}{(x^2 + 6x + 10)^2} \tag{4}$$

into partial fractions using the general form we gave in class.

Problem 5,6. Using the results in Problem 3 and 4, calculate

$$\int \frac{x^3 + 10x^2 + 27x + 28}{(x + 2)^2(x^2 + 2x + 3)} \, dx \tag{5}$$

and

$$\int \frac{2x^2 + 13x + 30}{(x^2 + 6x + 10)^2} \, dx \tag{6}$$

The homework is now closed. It is due April 18th.