MA1E01: Tutorial week 11

REMEMBER TO HAND BEFORE THE TUTORIAL STARTS

- Techniques of integration

Problem 1 *Compute the following integrals*

1. $$\int (3x^2 + 4x)e^{x^3+2x^2}\,dx$$
2. $$\int (3x^2 + 4x)e^{x^3+2x^2+8}\,dx$$
3. $$\int \frac{4x^4 + \sin x}{2\sqrt{\frac{4x^5}{5} - \cos x}}\,dx$$
4. $$\int \frac{\log x}{\sqrt{x}}\,dx$$
5. $$\int \frac{\log x^3}{\sqrt{x}}\,dx$$
6. $$\int x^3 e^x\,dx$$

Problem 2 *Compute the following integrals*

1. $$\int \frac{\log(\log x)}{x}\,dx$$
2. $$\int x^3 e^{x^2}\,dx$$
3. $$\int_{-1}^{1} \frac{1}{\sqrt{1-x^2}}dx$$

Problem 3 *Compute the integral*

$$\int \sqrt{1-x^2}dx$$

And use the result to evaluate

$$\int_{-1}^{1} \sqrt{1-x^2}dx$$

Is the result what you expected?