

Questions for recitation 15 January 2021

1. Let f be twice differentiable with $f(0) = 6$, $f(1) = 5$, and $f'(1) = 2$. Find

$$\int_0^1 x f''(x) dx.$$

2. Find $\int e^x \sin(2x) dx$

3. Find $\int t^5 \cos(t^3) dt$

4. Find $\int_1^4 x^{3/2} \ln x dx$

5. Use integration by parts to verify the reduction formula:

$$\int \cos^n x dx = \frac{1}{n} \cos^{n-1} x \sin x + \frac{n-1}{n} \int \cos^{n-2} x dx$$

Exercises 7.1, #15, 20, 29, 33, 35, 51, 52