

12012, Sections 001 and 002, Calculus with Precalculus II.

Home Work 5, due Wednesday February 28

Instructor: Prof. Artem Zvavitch

You must show all details of your calculations!

Problem 1. Find antiderivative of function

- $f(x) = -2x^3 + 3x^2 - 12x + 1.$
- $f(x) = \sin 9x.$
- $f(x) = x^{-\frac{1}{2}} + 3.$
- $f(x) = 3x^{2/3} - x.$

Problem 2. Find f' and f if

- $f''(x) = x^3 - 2x + 1$ and $f'(0) = 1, f(0) = 1.$
- $f''(x) = \cos 2x$ and $f'(0) = 1, f(0) = 1.$
- $f''(t) = t - \cos t$ and $f'(0) = 2, f(0) = -1.$
- $f''(x) = 2x + 1$ and $f(0) = 1, f(1) = 2.$

Problem 3. Evaluate the integral.

- $\int_{-1}^1 (x + 1)dx$
- $\int_0^\pi \cos 2x dx$
- $\int_{-3}^0 (2x - 5)dx$
- $\int_0^3 x^3 dx$
- $\int_4^9 \frac{8}{x^3} dx$
- $\int_0^4 (3x^5 + x^2 - 2x)dx$
- $\int_{\pi/4}^{3\pi/4} (\sin x + \cos x)dx$
- $\int_{-1}^3 |x|dx$