

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

Home Work 3, due Wednesday February 7

Instructor: Prof. Artem Zvavitch

You must show all details of your calculations!

Problem 1. Find $f'''(x)$ if

- $f(x) = x^5 + 6x^3 - 7x + 3.$
- $f(x) = \cos 2x - \sin 3x.$
- $f(x) = \tan x.$

Problem 2. Find $y'(x)$ and $y''(x)$ if

- $x^2 + y^2 - 3y = x.$
- $\cos x \sin y = 3.$
- $\tan \frac{x}{y} = x^2 + y^2.$

Problem 3. Let $s(t) = t^2 + \cos t - t + 3$ find velocity and acceleration.

Problem 4. Find absolute maximum and absolute minimum values of

- $f(x) = 3x^2 - 12x + 5, x \in [0, 3].$
- $f(x) = x\sqrt{4 - x^2}, x \in [-1, 2].$
- $f(x) = 2x - 4 \sin x, x \in [-\pi, \pi].$