

12011, Sections 001 and 002, Calculus with Precalculus II.

Home Work 1, due Wednesday January 23

Instructor: Prof. Artem Zvavitch

You must show all details of your calculations!

Problem 1. Find Evaluate the limit, if it exists

- $\lim_{x \rightarrow 1} x^2 + 3x - 5$
- $\lim_{x \rightarrow 1} \frac{x^2 + 3x - 5}{x^2 + 2x - 7}$
- $\lim_{x \rightarrow -2} \frac{x^2 - 4}{x + 2}$
- $\lim_{x \rightarrow 1} \frac{x^2 + 3x - 4}{x^2 - 3x + 2}$
- $\lim_{h \rightarrow 0} \frac{(1+h)^3 - 1}{h}$
- $\lim_{h \rightarrow 0} \frac{(x+h)^3 - x^3}{h}$
- $\lim_{h \rightarrow 0} \frac{(x+h)^{-2} - x^{-2}}{h}$
- $\lim_{x \rightarrow 1} \frac{|x-1|}{x^2 - 3x + 2}$
- $\lim_{x \rightarrow 1} \frac{x^2 + 3x + 10}{x^2 - 2x + 1}$
- $\lim_{x \rightarrow 1} \frac{x^2 + 3x - 6}{x^2 - 2x + 1}$
- $\lim_{x \rightarrow 1} \frac{x^2 + 3x - 4}{x^2 - 2x + 1}$

Problem 2. Find the equation of the tangent line to the parabola $y = x^2 - 3x + 4$ at point $P(1, 2)$.