

12011, Section 002, Calculus with Precalculus I.

Home Work 2, due Wednesday September 13

Instructor: Prof. Artem Zvavitch

You must show all details of your calculations!

Problem 1. *Factor the expression compactly*

- $x^2 + x^3$
- $x^5 - x$
- $x^{\frac{5}{2}} - 6x^{\frac{3}{2}} + 9x^{\frac{1}{2}}$
- $x^5 - x^4 + x - 1$
- $3a^4 - 24a$
- $2a^3 + 2a^2 - 4a$

Problem 2. *Obtain an equation of the line*

- *With slope $m = 2$ through point $(-1, 3)$.*
- *Through points $(2, 1)$ and $(-1, 6)$.*
- *Through points $(2, 1)$ and $(2, 2)$.*
- *Which is parallel to line $y = -\frac{1}{2}x + 3$ and goes through point $(2, 2)$.*
- *Which is perpendicular to line $y = -\frac{1}{2}x + 3$ and goes through point $(2, 2)$.*

Problem 3. *Find the slope and the y and x -intercept of the line*

- $y = 2x + 1$
- $2x - 2y = 3$
- $3x - y + 1 = 0$