

Name: _____

MATH 101

Spring 2024

HW 18: Due 04/17

*“If you don’t learn from your mistakes, there’s
no sense making them.”*

— Herbert V. Prochnow

Problem 1. (10pts) Without explicitly solving the quadratic equation, determine whether how many distinct solutions the equation has and whether the solutions are rational, real, or complex. Be sure to justify your answer.

$$x^2 = 36 - 5x$$

Problem 2. (10pts) Without explicitly factoring the function $f(x) = x^2 - 8x + 5$ factors 'nicely' over the integers, reals, or complex numbers. Be sure to justify your answer.

Problem 3. (10pts) Find the roots for the function $f(x) = 2x^2 - 7x + 1$. Be sure to fully justify your answer and show all your work.

Problem 4. (10pts) Solve the following equation. Be sure to fully justify your answer and show all your work.

$$x(x + 1) = -3$$