

## Math 190 Homework 1: Due Monday September 21

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*The assignment is due at the beginning of class on the due date. You are expected to provide full solutions, which are laid out in a linear coherent manner. Your work must be your own and must be self-contained. Your assignment must be stapled with your name and student number at the top of the first page.*

### Questions:

1. Find the domain of

$$f(x) = \frac{\sqrt{x+7}}{x^2 + 3x - 18}.$$

2. Find all (real) zeros of

$$g(x) = \begin{cases} 2x^2 - 7x + 3, & x \leq 2 \\ -\frac{1}{2}(x-2) + 2, & x > 2 \end{cases}.$$

3. Find all (real) values of  $\theta$  satisfying

$$3 \cos(4\theta) - \pi = 0$$

where  $0 \leq \theta < 2\pi$ .

4. Find all (real) solutions to

$$x^4 - 4x^2 + 2 = 0.$$

5. Explain why the equation

$$x^3 + ax^2 + bx + c = 0$$

cannot have four solutions no matter the values of  $a, b, c$ .