

Homework 8

Factoring, Quadratic Equation and Inequalities

Math 7a

November 15, 2017

In this homework, please do not make use of a calculator or a computer and make sure you show your work!

1. Without using electronic devices, calculate

$$3999999 * 4000001.$$

2. Factor the following expressions:

(a) $a^4 - b^4$

(b) $a^4 - b^6$

(c) $x^2 - 8$

3. (a) Solve the equation: $x^4 - 1 = 0$
(b) Solve the inequality: $x^4 - 1 > 0$

4. Solve the following equations without using electronic devices:

(a) $(x^2 - 1) - 5 = 0$

(b) $(x^2 - 1)(x - 2) = 0$

(c) $x^2 = x + 1$

(d) $x^4 - 3x^2 + 2 = 0$

(e) $x^3 + 4x^2 - 45x = 0$

5. Solve the following equations by completing squares:

(a) $x^2 - 4x - 7 = 0$

(b) $x^4 + 66x^2 + 1066 = 0$

(c) $x^3 + 6x^2 - 5x = 0$

6. Solve the following inequalities:

(a) $x^2 - 5x + 4 < 0$

(b) $x^3 + 3x^2 + 2x > 0$