

Name: _____

Date: _____

Algebra II
Homework 28

Problem 1. Write the following polynomials in the form $a(x \pm h)^2 \pm k$ using the method we covered in class (by completing the square). Show all your work. (The \pm just means that the signs don't have to be a certain way, just do whatever's natural.)

(a) $x^2 + 2x + 3$

(b) $2x^2 - 4x + 1$

(c) $2x^2 + 3x - 2$

(d) $-3x^2 + 2x + 1$

(e) $\frac{1}{4}x^2 + x - 1$

(f) $3x^2 - \frac{1}{2}x + 3$

(g) $5x^2 + 7x - 2$

(h) $-5x^2 - 3x + 7$

(i) $\frac{1}{2}x^2 + \frac{1}{3}x + \frac{1}{5}$

(j) $2x^2 - \frac{1}{3}x - 1$

(k) $ax^2 + bx + c$

Problem 2. Check your answers from Problem 1 by converting them back into the form $ax^2 \pm bx \pm c$.

Problem 3. Show that both $\frac{-b}{2a} + \frac{\sqrt{b^2-4ac}}{2a}$ and $\frac{-b}{2a} - \frac{\sqrt{b^2-4ac}}{2a}$ solve the equation $ax^2 + bx + c = 0$ by separately plugging each in for x . It may (or may not) be easier to write these as $\frac{-b+\sqrt{b^2-4ac}}{2a}$ and $\frac{-b-\sqrt{b^2-4ac}}{2a}$.