

## Homework Sheet Number Nine

1. Carefully write out the solutions to the problems we did in class on worksheet number #17
  - a.  $x^3 + 3x = 14$
  - b.  $x^3 + 24x = 16$
  - c.  $x^3 + 6x^2 + 3x = 2$

For **math credit**, do the next two problems:

2. Find one real root to the equation  $x^3 + 9x^2 = 100$  by reducing the equation to a depressed cubic and applying Cardano's formula.
3. The equation  $x^3 + 3x = 36$  clearly has 3 as a root. Use Bombelli's methods to show that the root given by Cardano's formula,  $\sqrt[3]{18 + \sqrt{325}} + \sqrt[3]{18 - \sqrt{325}}$  actually is 3. Do this algebraically, not by checking numerically on a calculator.