Math 06, Homework 3 on Sections 8.1, 8.2 due Tue, Sept 24 at the start of class.

Write all your answers on a separate sheet. These first ten questions are 1 point each. It is very important that you show clearly any work you had to do to get the answer. Check your answers match the answers below.

- (1) Solve by factoring: $x^2 + 9x + 14 = 0$
- (2) Solve using square-roots: $2x^2 12 = 0$
- (3) Find the number to add to make this a perfect square: $x^2 + 18x$
- (4) Solve by completing the square: $x^2 + 10x = 4$
- (5) Solve by completing the square: $z^2 5z 7 = 0$
- (6) Solve by factoring: $t^2 + 8t 65 = 0$
- (7) Find the discriminant and number of real solutions: $2w^2 5w + 11 = 0$
- (8) Solve with the quadratic formula: $x^2 + 8x 65 = 0$
- (9) Solve: $3t^2 7t + 1 = 0$
- (10) The product of two consecutive integers is 72. What are the two integers?

These next eight questions are 3 points each. Show clearly all your working out and reasoning.

- (11) What do you need to add to $x^2 3x$ to make it a perfect square?
- (12) Solve: $x^2 = 9$
- (13) Solve by factoring: $x^2 + 2x 3 = 0$
- (14) Solve by completing the square: $t^2 + 2t = 3$
- (15) Solve using the quadratic formula: $x^2 + 1 = 0$
- (16) Solve using the quadratic formula: $x^2 + 2x = 3$
- (17) Find the discriminant and the number of real solutions: $3x^2 4x + 1 = 0$
- (18) Solve by any method: $4x^2 5x 3 = 0$

Answers to questions (1)-(10):

- (1) x = -2 or -7(2) $x = \pm \sqrt{6}$ (3) 81 (4) $x = -5 \pm \sqrt{29}$
- (5) $z = \frac{5 \pm \sqrt{53}}{2}$
- (6) t = 5 or -13
- (7) The discriminant is -63. Since it is negative there are no real solutions.

(8)
$$x = 5 \text{ or } -13$$

(9)
$$t = \frac{7 \pm \sqrt{37}}{6}$$

(10) The pairs of consecutive integers are 8 and 9 or -9 and -8.