0C1/1C1 2nd In-Class Test, 2012, Feedback

As usual most marks were lost through simple errors of arithmetic (e.g. $4 \times 4 = 8$!). You should always check your working even if it takes away time that you could have given to another question – since these tests are marked purely on the answer you're better doing one question correctly that 7 incorrectly.

As well as checking your arithmetic many of the questions allow you to check your answer by substitution back. For example if you 'solve'

$$\frac{2}{x+4} + \frac{1}{10-2x} = \frac{1}{2}$$

and get $x = 3$ try substituting it back in to check that really is a solution. (In this case it isn't so something in your working must have gone wrong.)

Some specify points:

1. Despite this being open book a number of students quoted the expression for the roots of
   $$ax^2 + bx + c = 0$$
   incorrectly. It is
   $$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$
   Also some students used this formula and came up with an answer involving a square root of a negative number. As I mentioned several times in the lectures if you reach this situation in this course then you must have made a mistake.

2. In question 4 which asked for the cosine of the angle a line makes with the x-axis a lot of students came up with a negative answer. Clearly this must be wrong since cosine is positive for the angles in a triangle such as was described here. Also on this question some students gave an answer which was greater than 1. Since the values of $\cos(x)$ are always between -1 and 1 this should have alerted them that they'd made a mistake.

3. In the last question you were asked to find a line through a point *parallel* to the line $y = 4x$, in other words having gradient 4 (i.e. $m = 4$). However lots of students tried instead to find the line through that point which was *normal* to the line $y = 4x$. It's always a good idea to read the question.