Tutorial Worksheet 1

1) Use the method of completing square to solve the following equation. Consider all the three possibilities which might happen.

$a^2 x^2 + 2ax + c = 0$ ($a \neq 0$, a and c are real numbers.)

2) If $a, b > 0$, prove that $\frac{2}{\frac{1}{a} + \frac{1}{b}} \leq \sqrt{ab}$.

3) If a, b and c are positive real numbers and $2a + 3b = c$, find the maximum of ab in terms of c.