4A Roots of Quadratics

1. The roots of the quadratic equation $2x^2 - 5x - 4 = 0$ are α and β. Without solving the equation, find the values of:

a) $\alpha + \beta$

b) $\alpha\beta$

c) $\frac{1}{\alpha} + \frac{1}{\beta}$

d) $\alpha^2 + \beta^2$

2. The roots of the quadratic equation $ax^2 + bx + c = 0$ are $\alpha = -\frac{3}{2}$ and $\beta = \frac{5}{4}$. Find integer values for a, b and c.