

1. (still pending) Prove that \mathbb{Q} is closed under addition, subtraction, multiplication and division.
2. Simplify $\left(\sqrt{5 + \sqrt{21}} - \sqrt{5 - \sqrt{21}}\right)^2$
3. Simplify $\frac{\sqrt{2} + \sqrt{6}}{\sqrt{2} + \sqrt{3}}$
4. Suppose that $a \neq 0$. Solve the equation $ax^2 + bx + c = 0$ by completing the square.