

## Quiz 5

This quiz is graded out of 10 marks. No books, watches, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. (5 marks) Solve for x:

$$\begin{aligned}
 (x+2)(2x-1) &= x^2 - 1 \\
 2x^2 - x + 4x - 2 &= x^2 - 1 \\
 x^2 + 3x - 1 &= 0 \\
 x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\
 &= \frac{-3 \pm \sqrt{3^2 - 4(1)(-1)}}{2(1)} \\
 &= \frac{-3 \pm \sqrt{13}}{2}
 \end{aligned}$$

Question 2. (5 marks) Solve for x:

$$\begin{aligned}
 \frac{x+4}{x^2-3x+2} - \frac{5}{x^2-4x+3} &= \frac{x-4}{x^2-5x+6} \\
 \frac{x+4}{(x-2)(x-1)} - \frac{5}{(x-3)(x-1)} &= \frac{x-4}{(x-2)(x-3)} \quad \text{LCD: } (x-1)(x-2)(x-3) \\
 \frac{(x+4)(x-1)(x-2)(x-3)}{(x-2)(x-1)} - \frac{5(x-1)(x-2)(x-3)}{(x-3)(x-1)} &= \frac{(x-4)(x-1)(x-2)(x-3)}{(x-2)(x-3)} \\
 (x+4)(x-3) - 5(x-2) &= (x-4)(x-1) \\
 x^2 + x - 12 - 5x + 10 &= x^2 - 5x + 4 \\
 x &= 6
 \end{aligned}$$

$x=6$  is the solution since it does not make any denominator vanish.