



Air maths tuition

Interact, engage and perform

Inequalities

| Past Exam Question | C1 OCR June 2012 Q9(i)

A rectangular tile has length $4x$ cm and width $(x + 3)$ cm. The area of the rectangle is less than 112 cm². By writing down and solving an inequality, determine the set of possible values of x .

The handwritten solution is divided into two columns by a vertical green line. On the left side, a rectangle is drawn with length $4x$ cm and width $(x+3)$ cm. The area is labeled as $\text{Area} < 112 \text{ cm}^2$. Below this, the inequality is written as $4x(x+3) < 112$, which is simplified to $x^2 + 3x < 28$, then $x^2 + 3x - 28 < 0$, and factored as $(x+7)(x-4) < 0$. The critical values are found by solving $x+7=0$ or $x-4=0$. On the right side, the roots are given as $x = -7$ or $x = 4$. A graph of the parabola $y = (x+7)(x-4)$ is shown, opening upwards with x-intercepts at -7 and 4 . The region between the roots is shaded green. The text states "from the graph" and gives the solution $-7 < x < 4$. Since $x > 0$, the final solution is $0 < x < 4$.

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