



Air maths tuition

Interact, engage and perform

## Logs - Solving inequalities

<p>If <math>N &lt; 1</math> then <math>\log_a N &lt; 0</math></p> $0.92^x < 0.1$ $\therefore \log 0.92^x < \log 0.1$ $\therefore x \log 0.92 < \log 0.1$ $\therefore x > \frac{\log 0.1}{\log 0.92}$ $\therefore x > 27.615\dots$ $\therefore x > 27.6 \text{ (3sf)}$	$5^{2x} \times 5^{2x+1} > 2000$ $\therefore 5^{3x+1} > 2000$ $\therefore \log 5^{3x+1} > \log 2000$ $\therefore (3x+1) \log 5 > \log 2000$ $\therefore 3x \log 5 + \log 5 > \log 2000$ $\therefore x > \frac{\log 2000 - \log 5}{3 \log 5}$ $\therefore x > 1.2409\dots$ $\therefore x > 1.24 \text{ (3sf)}$
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