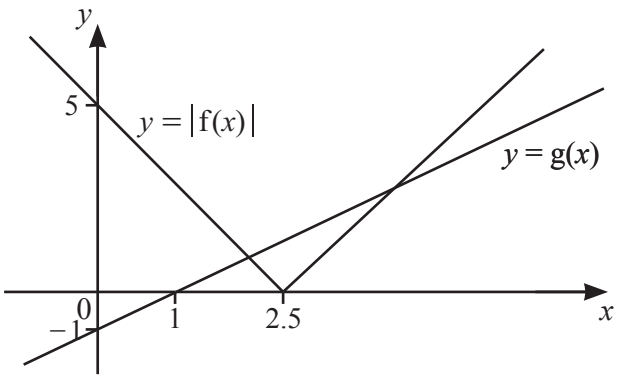
1 DO NOT USE A CALCULATOR IN THIS QUESTION.

A curve has equation $y = \dfrac{6+\sqrt{x}}{3+\sqrt{x}}$ where $x \geqslant 0$. Find the exact value of y when $x = 6$. Give your answer in the form $a + b\sqrt{c}$, where a, b and c are integers. [3]

2



The diagram shows the graphs of $y = |\mathrm{f}(x)|$ and $y = \mathrm{g}(x)$, where $y = \mathrm{f}(x)$ and $y = \mathrm{g}(x)$ are straight lines. Solve the inequality $|\mathrm{f}(x)| \leqslant \mathrm{g}(x)$. [5]