11. A curve C has equation $y = f(x)$, $x > 0$

Given that

- $f''(x) = 4x + \frac{1}{\sqrt{x}}$
- the point P has x coordinate 4 and lies on C
- the tangent to C at P has equation $y = 3x + 4$

(a) find an equation of the normal to C at P

(2)

(b) find $f(x)$, writing your answer in simplest form.

(6)

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Question 11 continued

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(Total for Question 11 is 8 marks)

TOTAL FOR PAPER IS 75 MARKS

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