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12. The curve with equation $y = f(x), x > 0,$ passes through the point $P(4, -2)$.

Given that

$$\frac{dy}{dx} = 3x\sqrt{x} - 10x^{-\frac{1}{2}}$$

(a) find the equation of the tangent to the curve at P, writing your answer in the form $y = mx + c$, where m and c are integers to be found.

(4)

(b) Find $f(x)$.

(5)

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Q12

(Total 9 marks)

TOTAL FOR PAPER IS 75 MARKS

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