11 A curve passes through the point $P(4, 3)$ and is such that

$$\frac{dy}{dx} = \frac{8}{x^2} - \frac{10}{(2x-3)^2}.$$

(a) Find the equation of the normal to the curve at P. Give your answer in the form $y = mx + c$. [3]

(b) Find the rate of change of the gradient of the curve when $x = 4$. [3]

(c) Given that the curve also passes through the point $(-1, q)$, find the value of q. [5]

Additional page

If you use the following page to complete the answer to any question, the question number must be clearly shown.