2. The curve C has equation

$$y = 5x^3 + \frac{19}{2}x^2 - 10x - 12$$

(a) Find $\dfrac{dy}{dx}$ giving your answer in simplest form.

(2)

Given that the point $P(-2, 6)$ lies on C,

(b) find the equation of the tangent to C at P.
Give your answer in the form $y = mx + c$ where m and c are constants.

(3)