Finding Functions

Exercise 13C

1 a) Find eqn curve passing through $(2, 10)$

if $\frac{dy}{dx} = 3x^2 + 2x$

$$y = \frac{3x^3}{3} + \frac{2x^2}{2} + c$$

$$y = x^3 + x^2 + c$$

Sub $(2,10)$ $\quad 10 = 2^3 + 2^2 + c$

$$10 = 8 + 4 + c$$

$$c = -2$$

$$\underline{y = x^3 + x^2 - 2}$$

1 f) $\quad \frac{dy}{dx} = \frac{x^2 + 3}{\sqrt{x}}$ $\qquad$ point $(9, 1)$

$$\frac{dy}{dx} = x^{3/2} + 3x^{-\frac{1}{2}}$$

$$y = \frac{x^{5/2}}{\frac{5}{2}} + \frac{x^{\frac{1}{2}}}{\frac{1}{2}} + c$$

$$y = \frac{2}{5}x^{5/2} + 2x^{\frac{1}{2}} + c$$

Sub $(0,1)$ $\quad 1 = 0 + 0 + c$

$$1 = c$$

$$y = \frac{2}{5}x^{5/2} + 2x^{\frac{1}{2}} + 1$$

Classwork

Exercise 13B Q8, Q10, Q12, Q14

13C Q2, Q4, Q6, Q8