

Adrian Galika - 1901402

11:00

11/11/2020

ACTIA 4000 / ACMA 4006

Q2.

a)

i) $y = 8x^3 - 2x^2 + x + 10$

$$\frac{dy}{dx} = 24x^2 - 4x + 1$$

ii) $y = (5x - 3)(6x - 1)$

$$y = 30x^2 - 5x - 18x + 3$$

$$y = 30x^2 - 23x + 3$$

$$\frac{dy}{dx} = 60x - 23$$

iii) $y = \frac{3}{\sqrt{x}} + \ln x$

iv) $y = 5 \sin \frac{x}{2} - 6 \cos 3x - \tan \frac{2x}{3}$

$$\frac{dy}{dx} = 2.5 \sin \frac{x}{2} + 18 \cos 3x + \frac{1}{3} \tan \frac{x}{3}$$

v) $y = e^{7x} \tan 3x$

$$\frac{dy}{dx} = (e^{7x})(\sin 3x) + (\tan 3x)(7e^{7x})$$