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Barry Phillips

2014949

6/11/2020

Question 1

i)  $8x^3 - 2x^2 - x + 1$

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

ii)  $y = -3(x-5)^2$   
 $y = 3x^2 - 30x + 75$

$$(x-5)(x-5)$$
$$x^2 - 5x - 5x + 25$$
$$x^2 - 10x + 25$$

$$\frac{dy}{dx} = 6x - 30$$

iii)  $y = \frac{7}{x^3} + 4e^{3x}$