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**Pure Mathematics-1**

**TOPIC- CALCULUS**

**BASIC**

# DIFFERENTIATION & Integration

1 Find  $\int \left(x^3 + \frac{1}{x^3}\right) dx.$

7-11-12-1



[3]

02

Find  $\int \left(x + \frac{1}{x}\right)^2 dx.$

N-10-11-1



[3]

03

Evaluate  $\int_0^1 \sqrt{3x+1} dx.$  7 4-2

[4]

## DIFFERENTIATION & Integration

4 (a) Differentiate  $\frac{2x^3 + 5}{x}$  with respect to  $x$ .

7-11-13-4

[3]

(b) Find  $\int (3x - 2)^5 dx$  and hence find the value of  $\int_0^1 (3x - 2)^5 dx$ .

[4]



# DIFFERENTIATION & Integration

05

(a) Differentiate  $4x + \frac{6}{x^2}$  with respect to  $x$ .

[2]

7-3-3

(b) Find  $\int \left(4x + \frac{6}{x^2}\right) dx$ .

[3]



# DIFFERENTIATION & Integration

6 The equation of a curve is  $y = \frac{2}{\sqrt{(5x-6)}}$ .

N-13-12-3

(i) Find the gradient of the curve at the point where  $x = 2$ .

[3]

(ii) Find  $\int \frac{2}{\sqrt{(5x-6)}} dx$  and hence evaluate  $\int_2^3 \frac{2}{\sqrt{(5x-6)}} dx$ .

[4]

