

13A Introduction to Integration

1. Integrate the following:

a) $\frac{dy}{dx} = x^4$

b) $\frac{dy}{dx} = x^{-5}$

c) $\frac{dy}{dx} = 6x + 2x^{-3} - 3x^{\frac{1}{2}}$

2. Find:

$$\int (x^{\frac{1}{2}} + 2x^3) dx$$

3. Find:

$$\int (4t^2 + 5) dt$$

4. Find:

$$\int (3x^2 + px^{-2} + q^2) dx$$

5. Find:

$$\int \left(4x^2 + \frac{\sqrt{x} + 5}{x^2} \right) dx$$