

Integration past paper questions EDEXCEL A LEVEL YEAR1**1.**

Find $\int \left(1 + 3\sqrt{x} - \frac{1}{x^2} \right) dx$. (4)

2.

Given that $y = 2x^2 - \frac{6}{x^3}$, $x \neq 0$,

find $\int y \, dx$. (3)

3.

(a) Show that $(4 + 3\sqrt{x})^2$ can be written as $16 + k\sqrt{x} + 9x$, where k is a constant to be found. (2)

(b) Find $\int (4 + 3\sqrt{x})^2 dx$. (3)

4.

Find $\int (3x^2 + 4x^5 - 7) dx$. (4)

5.

Find $\int (12x^5 - 8x^3 + 3) dx$, giving each term in its simplest form. (4)

6.

Find

$$\int (12x^5 - 3x^2 + 4x^{\frac{1}{3}}) dx$$

giving each term in its simplest form.

(5)**7.**Given that $y = x^4 + 6x^{\frac{1}{2}}$, find in their simplest form

$$\int y dx$$

(3)**8.**

$$\frac{dy}{dx} = -x^3 + \frac{4x - 5}{2x^3}, \quad x \neq 0$$

Given that $y = 7$ at $x = 1$, find y in terms of x , giving each term in its simplest form.**(6)**