Integration

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

(4)

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Given that $y = 6x - \dfrac{4}{x^2}$, $x \neq 0$,

(b) find $\int y \ dx$.

(3)

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

(2)

(b) find $\int y \ dx$.

(3)

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Find $\int (6x^2 + 2 + x^{-\frac{1}{2}}) \ dx$, giving each term in its simplest form.

(4)

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(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)

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Given that $y = 3x^2 + 4\sqrt{x}$, $x > 0$, find

(c) $\int y \ dx$.

(3)

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Find $\int (2 + 5x^2) \ dx$.

(3)

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

(4)

Given that $y = 2x^3 + \dfrac{3}{x^2}$, $x \neq 0$, find

(b) $\int y \ dx$, simplifying each term.

(3)

Find

$$\int (8x^3 + 6x^{\frac{1}{2}} - 5) \ dx,$$

giving each term in its simplest form.

(4)

Find

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

giving each term in its simplest form.

(5)

Given that $y = 2x^5 + 7 + \dfrac{1}{x^3}$, $x \neq 0$, find, in their simplest form,

(b) $\int y \ dx$.

(4)