

## 13.2) Indefinite integrals

## Worked example

Find:

$$\int 10x \, dx$$

$$\int 15x^2 \, dx$$

## Your turn

Find:

$$\int 20x^3 \, dx$$

$$5x^4 + c$$

## Worked example

Find:

$$\int (x^{-\frac{5}{2}} - 3) dx$$

## Your turn

Find:

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

## Worked example

Find:

$$\int (2\theta^6 + 3) d\theta$$

## Your turn

Find:

$$\int (6t^2 - 1) dt$$

$$2t^3 - t + c$$

## Worked example

Find  $\int (rx^4 - 5s) dx$  where  $r$  and  $s$  are constants.

## Your turn

Find  $\int (px^3 + q) dx$  where  $p$  and  $q$  are constants.

$$\frac{1}{4}px^4 + qx + c$$

## Worked example

Find:

$$\int \left( \frac{3}{x^2} - 2\sqrt[3]{x} \right) dx$$

## Your turn

Find:

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

## Worked example

Find:

$$\int \left( x^2 \left( x^3 - \frac{4}{x^2} \right) \right) dx$$

## Your turn

Find:

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

$$\frac{1}{4}x^4 + 2x + c$$

## Worked example

Find:

$$\int \left( (3x)^5 - \frac{\sqrt[3]{x} - 2}{x^4} \right) dx$$

## Your turn

Find:

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

$$\frac{4}{3}x^3 - \frac{2}{\sqrt{x}} - \frac{5}{x} + c$$



## Worked example

$$\int \left( \frac{p}{2x^2} + pq \right) dx = \frac{2}{x} + 12 + c$$

Find the value of  $p$  and the value of  $q$

## Your turn

$$\int \left( \frac{p}{3x^3} + pq^3 \right) dx = \frac{-4}{3x} - 108 + c$$

Find the value of  $p$  and the value of  $q$

$$p = 4, q = -3$$