

## Section 3: Integration

### Section test

- If  $\frac{dy}{dx} = x^{10}$ , find an expression for  $y$ .
- Given that  $\frac{dy}{dx} = 1 + 3x^2$ , then
  - $y = x^3 + c$
  - $y = x + x^3 + c$
  - $y = x + x^3$
  - $y = 6x + c$
- $\int (2x^5 - 4x) dx =$ 
  - $\frac{1}{5}x^6 - 4x^2 + c$
  - $\frac{1}{6}x^6 - \frac{1}{2}x^2 + c$
  - $\frac{1}{3}x^6 - 2x^2 + c$
  - $10x^4 - 4 + c$
- Given that  $f'(x) = (1 + 3x)^2$ , then
  - $f(x) = 6 + 18x$
  - $f(x) = x + 3x^2 + 3x^3$
  - $f(x) = x + 3x^3 + c$
  - $f(x) = x + 3x^2 + 3x^3 + c$
- Given that  $f'(x) = \frac{(x^2 + 2x^3)}{2x}$ ,  $f(x)$  is given by
  - $f(x) = \frac{\frac{1}{3}x^3 + \frac{1}{2}x^4}{x^2}$
  - $f(x) = \frac{2x^3 + 3x^4}{6x^2} + c$
  - $f(x) = \frac{1}{4}x^2 + \frac{1}{3}x^3 + c$
  - $f(x) = \frac{1}{2}x + \frac{1}{3}x^3 + c$
  - I don't know
- Given that  $\frac{dy}{dx} = x^2$  and  $y = 2$  when  $x = 1$ , find  $y$ .
- Given that  $\frac{dy}{dx} = 2x^3 - x - 5$  and that  $y = -1$  when  $x = 2$ , find the value of  $y$  when  $x = 1$ .
- A curve has gradient function  $\frac{dy}{dx} = 3x^2 - 2x + 1$  and passes through the point  $(2, 5)$ . The equation of the curve is
  - $y = x^3 - x^2 + x + 5$
  - $y = x^3 - x^2 + x + c$
  - $y = 6x - 2$
  - $y = x^3 - x^2 + x - 1$

## Edexcel International P1 Calculus Integration – Section test

9. A curve has gradient function  $\frac{dy}{dx} = 3x - \frac{2}{x^3}$  and passes through the point (2, 7).

What is the  $y$ -coordinate of the point on the curve where  $x = -1$ ?

10. A curve has gradient function  $\frac{dy}{dx} = x^{\frac{3}{2}} - 6\sqrt{x} + 1$  and passes through the point (1,-2.5).

What is the  $y$ -coordinate of the point on the curve where  $x = 4$ ?