# Section 1: Introduction to integration

## Section test

1. If $\frac{dy}{dx} = x^{10}$, find an expression for $y$.

2. Given that $\frac{dy}{dx} = 1 + 3x^2$, then

(a) $y = x^3 + c$ (b) $y = x + x^3 + c$

(c) $y = x + x^3$ (d) $y = 6x + c$

3. $\int (2x^5 - 4x)\,dx =$

(a) $\frac{1}{5}x^6 - 4x^2 + c$ (b) $\frac{1}{6}x^6 - \frac{1}{2}x^2 + c$

(c) $\frac{1}{3}x^6 - 2x^2 + c$ (d) $10x^4 - 4 + c$

4. Given that $f'(x) = (1+3x)^2$, then

(a) $f(x) = 6 + 18x$ (b) $f(x) = x + 3x^2 + 3x^3$

(c) $f(x) = x + 3x^3 + c$ (d) $f(x) = x + 3x^2 + 3x^3 + c$

5. Given that $f'(x) = \frac{(x^2 + 2x^3)}{2x}$, $f(x)$ is given by

(a) $f(x) = \frac{\frac{1}{3}x^3 + \frac{1}{2}x^4}{x^2}$ (b) $f(x) = \frac{2x^3 + 3x^4}{6x^2} + c$

(c) $f(x) = \frac{1}{4}x^2 + \frac{1}{3}x^3 + c$ (d) $f(x) = \frac{1}{2}x + \frac{1}{3}x^3 + c$

(e) I don't know

6. Given that $\frac{dy}{dx} = x^2$ and $y = 2$ when $x = 1$, find $y$.

7. Given that $\frac{dy}{dx} = 2x^3 - x - 5$ and that $y = -1$ when $x = 2$, find the value of $y$ when $x = 1$.

8. 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

(a) $y = x^3 - x^2 + x + 5$ (b) $y = x^3 - x^2 + x + c$

(c) $y = 6x - 2$ (d) $y = x^3 - x^2 + x - 1$

 

# Edexcel AS Maths Integration 1 section test solutions

9. A curve has gradient function $\frac{dy}{dx} = 3x - 2$ and passes through the point (2, 0).
   What is the *y*-coordinate of the point on the curve where $x = -1$?

10. A curve has gradient function $\frac{dy}{dx} = x^2 - x + 1$ and passes through the point (-1, 1). What is the *y*-coordinate of the point on the curve where $x = 2$?