

(C1-8.4a) Name:

Homework Questions 4 – Separate Integration

Integrate the following

1. $\int \frac{2}{x^2} - 3x \, dx$

$$y = -2x^{-1} - \frac{3x^2}{2} + c$$

2. $\int \sqrt{x} + \frac{3}{x^2} \, dx$

$$y = \frac{2}{3}x^{\frac{3}{2}} - 3x^{-1} + c$$

3. $\int x(x - 4) \, dx$

$$y = \frac{x^3}{3} - 2x^2 + c$$

4. $\int (x + 2)^2 \, dx$

$$y = \frac{x^3}{3} + 2x^2 + 4x + c$$

5. $\int (x - 4)(x + 2) \, dx$

$$y = \frac{x^3}{3} - x^2 - 8x + c$$

6. $\int \frac{x^3 - 3x}{4x} \, dx$

$$y = \frac{x^3}{12} - \frac{3x}{4} + c$$

7. $\int \frac{2}{\sqrt[3]{x}} + \frac{1}{\sqrt{x^3}} + 1 \, dx$

$$y = 3x^{\frac{2}{3}} - 2x^{-\frac{1}{4}} + x^2 + c$$

8. $\int \sqrt[3]{x} + 3\sqrt{x} \, dx$

$$y = \frac{3}{4}x^{\frac{4}{3}} + 2x^{\frac{3}{2}} + c$$

9. $\int \frac{\sqrt{x} + 2x^4}{x^2} \, dx$

$$y = 2x^{\frac{1}{2}} + \frac{2x^3}{3} + c$$

10. $\int (\sqrt{x} + 3)^2 \, dx$

$$y = \frac{x^2}{2} + 4x^{\frac{3}{2}} + 9x + c$$