

(C1-8.1a) Name:

Homework Questions 1 – Basic Integration

Find an expression for y when $\frac{dy}{dx}$ is:

1. $\frac{dy}{dx} = x^2$

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

2. $\frac{dy}{dx} = x^3$

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

3. $\frac{dy}{dx} = 2x^2$

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

4. $\frac{dy}{dx} = 3x^4$

$$y = \frac{3x^5}{5} + c$$

5. $\frac{dy}{dx} = -2x^5$

$$y = -\frac{x^6}{6} + c$$

6. $\frac{dy}{dx} = -4x^2$

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

7. $\frac{dy}{dx} = 2x^{-3}$

$$y = -x^{-2} + c$$

8. $\frac{dy}{dx} = -3x^{-2}$

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

9. $\frac{dy}{dx} = 3 \cdot 6x^{0.2}$

$$y = 3x^{1.2} + c$$

10. $\frac{dy}{dx} = -2 \cdot 4x^{-1.2}$

$$y = 2x^{-0.2} + c$$

11. $\frac{dy}{dx} = \frac{1}{x^2}$

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

12. $\frac{dy}{dx} = -2x^{-\frac{1}{2}}$

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

13. $\frac{dy}{dx} = -5x^{-2}$

$$y = 5x^{-1} + c$$

14. $\frac{dy}{dx} = 3x^{-\frac{2}{3}}$

$$y = 9x^{\frac{1}{3}} + c$$

15. $\frac{dy}{dx} = -4x^{-\frac{1}{4}}$

$$y = -\frac{16}{3}x^{\frac{3}{4}} + c$$

16. $\frac{dy}{dx} = -x^{\frac{3}{4}}$

$$y = -\frac{4}{7}x^{\frac{7}{4}} + c$$

17. $\frac{dy}{dx} = 4$

$$y = 4x + c$$

18. $\frac{dy}{dx} = -6x$

$$y = -3x^2 + c$$

19. $\frac{dy}{dx} = 5x^4$

$$y = x^5 + c$$

20. $\frac{dy}{dx} = -6x^{-3}$

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