

EXERCISES

Find the following integrals. Check your answer by differentiating.

$$1. \int (6x^2 - 4x + 3) dx$$

$$11. \int (7e^{3x} - 2x^{-1} + x + 3) dx$$

$$2. \int (4x^3 - 7x^2 + 3x - 5) dx$$

$$12. \int (2e^{-3x} - 4x^{-1} + 5) dx$$

$$3. \int (2x^4 + 3x^3 - 5x^2 - 2x + 1) dx$$

$$13. \int (2e^{-x} + 3e^x + x^2 - 6) dx$$

$$4. \int (2x^4 + 6x^3 + 7x^2 - 4x + 1) dx$$

$$14. \int \left(4\sqrt{x} + 3\sqrt[3]{x^2} - \frac{4}{x^2} - \frac{3}{x} + 2 \right) dx$$

$$5. \int (5x^2 - 7x + 6) dx$$

$$15. \int \left(\frac{5}{x^3} - \frac{2}{x} + \frac{3}{\sqrt{x}} + x + 1 \right) dx$$

$$6. \int (6x^3 - 6x^2 + 8x - 2) dx$$

$$16. \int \left(\frac{1}{e^x} + \frac{1}{x} + \frac{1}{x^2} + \frac{1}{\sqrt{x}} + 3 \right) dx$$

$$7. \int (3x^{-2} + 4x^{-3} + 6) dx$$

$$17. \int \frac{x^2 + 5x + 1}{x} dx$$

$$8. \int (5x^{3/2} + 2x^{1/2} - 7x + 3) dx$$

$$18. \int \frac{3x^3 - 7x^2 + 4x - 1}{x} dx$$

$$9. \int (7x^{-3} + 3x^{-1/2} - 5x^{-3/2} - 6) dx$$

$$19. \int \frac{2x^2 - 3x + 5}{x^2} dx$$

$$10. \int (3x^{-1} + 4e^{2x} + 5x - 6) dx$$

$$20. \int \frac{4x^3 - 8x^2 + 3x - 4}{2x^2} dx$$

ANSWERS

1. $2x^3 - 2x^2 + 3x + C$

11. $\frac{7}{3}e^{3x} - 2 \ln |x| + \frac{1}{2}x^2 + 3x + C$

2. $x^4 - \frac{7}{3}x^3 + \frac{3}{2}x^2 - 5x + C$

12. $-\frac{2}{3}e^{-3x} - 4 \ln |x| + 5x + C$

3. $\frac{2}{5}x^5 + \frac{3}{4}x^4 - \frac{5}{3}x^3 - x^2 + x + C$

13. $-2e^{-x} + 3e^x + \frac{1}{3}x^3 - 6x + C$

4. $\frac{2}{5}x^5 + \frac{3}{2}x^4 + \frac{7}{3}x^3 - 2x^2 + x + C$

14. $\frac{8}{3}x^{3/2} + \frac{9}{5}x^{5/3} + 4x^{-1} - 3 \ln |x| + 2x + C$

5. $\frac{5}{3}x^3 - \frac{7}{2}x^2 + 6x + C$

15. $-\frac{5}{2}x^{-2} - 2 \ln |x| + 6x^{1/2} + \frac{1}{2}x^2 + x + C$

6. $\frac{3}{2}x^4 - 2x^3 + 4x^2 - 2x + C$

16. $-e^{-x} + \ln |x| - x^{-1} + 2x^{1/2} + 3x + C$

7. $-3x^{-1} - 2x^{-2} + 6x + C$

17. $\frac{1}{2}x^2 + 5x + \ln |x| + C$

8. $2x^{5/2} + \frac{4}{3}x^{3/2} - \frac{7}{2}x^2 + 3x + C$

18. $x^3 - \frac{7}{2}x^2 + 4x - \ln |x| + C$

9. $-\frac{7}{2}x^{-2} + 6x^{1/2} + 10x^{-1/2} - 6x + C$

19. $2x - 3 \ln |x| - 5x^{-1} + C$

10. $3 \ln |x| + 2e^{2x} + \frac{5}{2}x^2 - 6x + C$

20. $x^2 - 4x + \frac{3}{2} \ln |x| + 2x^{-1} + C$