

PRACTICE PROBLEM SET 20

Now evaluate the following integrals. The answers are in Chapter 21.

1. $\int \frac{1}{x^4} dx$

2. $\int \frac{5}{\sqrt{x}} dx$

3. $\int \frac{x^5 + 7}{x^2} dx$

4. $\int (5x^4 - 3x^2 + 2x + 6) dx$

5. $\int (3x^3 - 2x^2 + x^4 + 16x^7) dx$

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

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

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

9. $\int \frac{x^6 - 2x^4 + 1}{x^2} dx$

10. $\int x(x - 1)^3 dx$

11. $\int (\cos x - 5 \sin x) dx$

12. $\int \sec x (\sec x + \tan x) dx$

13. $\int (\sec^2 x + x) dx$

14. $\int \frac{\sin x}{\cos^2 x} dx$

15. $\int \frac{\cos^3 x + 4}{\cos^2 x} dx$

16. $\int \frac{\sin 2x}{\cos x} dx$

17. $\int (1 + \cos^2 x \sec x) dx$

18. $\int (\tan^2 x) dx$

19. $\int \frac{1}{\csc x} dx$

20. $\int \left(x - \frac{2}{\cos^2 x} \right) dx$

ANSWER KEY

PRACTICE PROBLEM SET 20

Now evaluate the following integrals. The answers are in Chapter 21.

1. $\int \frac{1}{x^4} dx = \frac{1}{3x^3} + C$

2. $\int \frac{5}{\sqrt{x}} dx$

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

4. $\int (5x^4 - 3x^2 + 2x + 6) dx$

5. $\int (3x^3 - 2x^2 + x^4 + 16x^7) dx = \frac{3}{4}x^4 - \frac{2}{3}x^3 + \frac{x^5}{5} + \frac{16}{8}x^8 + C$

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

7. $\int x^{\frac{1}{3}}(2+x) dx = \frac{3}{4}x^{\frac{4}{3}} + \frac{3}{7}x^{\frac{7}{3}} + C$

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

9. $\int \frac{x^6 - 2x^4 + 1}{x^2} dx = \frac{x^5}{5} - \frac{2x^3}{3} - \frac{1}{x} + C$

10. $\int x(x-1)^3 dx$

11. $\int (\cos x - 5 \sin x) dx = \sin x + 5 \cos x + C$

12. $\int \sec x (\sec x + \tan x) dx$

13. $\int (\sec^2 x + x) dx = \tan x + \frac{x^2}{2} + C$

14. $\int \frac{\sin x}{\cos^2 x} dx$

15. $\int \frac{\cos^3 x + 4}{\cos^2 x} dx = \sin x + 4 \tan x + C$

16. $\int \frac{\sin 2x}{\cos x} dx$

17. $\int (1 + \cos^2 x \sec x) dx = x + \sin x + C$

18. $\int (\tan^2 x) dx$

19. $\int \frac{1}{\csc x} dx = -\cos x + C$

20. $\int \left(x - \frac{2}{\cos^2 x} \right) dx$