

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Find the indefinite integral.

$$\int 8(x-5)^7 dx$$

2. Find the indefinite integral.

$$\int \frac{2}{(r-1)^4} dr$$

3. Find the indefinite integral.

$$\int \left[ r - \frac{2}{(r-5)^8} \right] dr$$

4. Find the indefinite integral.

$$\int \frac{z^2}{z+7} dz$$

5. Find the indefinite integral.

$$\int \frac{6y}{y+3} dy$$

6. Find the indefinite integral.

$$\int \frac{\cot(12/w^2)}{w^3} dw$$

7. Find the definite integral.

$$\int_0^{15} \frac{4x}{\sqrt{x^2 + 64}} dx$$

8. Find the definite integral.

$$\int_0^2 x^3 e^{-x^4} dx$$

9. Find the indefinite integral.

$$\int x^3 e^{6x^2} dx$$

10. Find the indefinite integral.

$$\int \frac{8x^2}{e^x} dx$$

11. Find the indefinite integral.

$$\int x^3 \ln x dx$$

12. Find the indefinite integral.

$$\int \frac{3(\ln x)^2}{x^2} dx$$

13. Find the indefinite integral.

$$\int u \ln(u + 6) du$$

14. Find the indefinite integral.

$$\int \frac{\ln q}{2q^3} dq$$

15. Find the indefinite integral.

$$\int v \sqrt{2v - 9} dv$$

16. Find the indefinite integral.

$$\int \frac{t}{\sqrt{1+3t}} dt$$

17. Find the indefinite integral.

$$\int e^{-7n} \sin 5n dn$$

18. Find the indefinite integral.

$$\int e^{9u} \cos 6u \, du$$

19. Find the definite integral.

$$\int_0^{\pi/5} x \cos 5x \, dx$$

20. Find the definite integral.

$$\int_1^3 x^3 \ln x \, dx$$

21. Find the indefinite integral.

$$\int \cos x \sin^4 x \, dx$$

22. Find the indefinite integral.

$$\int \sin x \cos^3 x \, dx$$

23. Find the indefinite integral.

$$\int \sin^3 4x \cos^4 4x \, dx$$

24. Find the indefinite integral.

$$\int \cos^3 4x \sin^2 4x dx$$

25. Find the indefinite integral.

$$\int \cos^3 2x dx$$

26. Find the indefinite integral.

$$\int \cos^4 5x dx$$

27. Find the indefinite integral.

$$\int \sin^3 \frac{x}{5} dx$$

28. Find the indefinite integral.

$$\int \sin^2 2x dx$$

29. Find the indefinite integral.

$$\int \sin^3 2\theta \sqrt{\cos 2\theta} d\theta$$

30. Find the indefinite integral.

$$\int \frac{\cos^3 \theta}{\sqrt{\sin \theta}} d\theta$$

31. Find the indefinite integral.

$$\int \tan^3 7x dx$$

32. Find the indefinite integral.

$$\int \tan^5 \left( \frac{x}{11} \right) dx$$

33. Find the indefinite integral.

$$\int \sec^4 2x dx$$

34. Find the indefinite integral.

$$\int \sec^6 4x dx$$

35. Find the indefinite integral.

$$\int \tan^3 \left( \frac{\pi x}{7} \right) \sec^2 \left( \frac{\pi x}{7} \right) dx$$

36. Find the indefinite integral.

$$\int \sec^5 3x \tan 3x \, dx$$

37. Find the arc length of the graph of the function  $y = \frac{2}{3}x^{\frac{3}{2}} + 2$  over the interval  $[0,12]$ .

38. Find the arc length of the graph of the function  $y = 18x^{\frac{3}{2}} + 6$  over the interval  $[0,7]$ .

39. Find the arc length of the graph of the function  $y = \frac{3}{2}x^{\frac{2}{3}} + 10$  over the interval  $[1,512]$ .

40. Find the arc length of the graph of the function  $y = \frac{x^8}{16} + \frac{1}{12x^6}$  over the interval  $[1,2]$ .

41. Find the arc length of the graph of the function  $x = \frac{1}{3}(y^2 + 2)^{\frac{3}{2}}$  over the interval  $0 \leq y \leq 14$ .

42. Find the arc length of the graph of the function  $x = \frac{1}{3}(y-3)\sqrt{y}$  over the interval  $1 \leq y \leq 9$ .



M251 Practice Exam 3 supplement for section 7.4

1. Write the definite integral for the area of the surface generated by revolving the curve about the  $x$ -axis.

$$y = \frac{1}{13}x^3, \quad 0 \leq x \leq 13$$

2. Write the definite integral for the area of the surface generated by revolving the curve about the  $x$ -axis.

$$y = 5\sqrt{x}, \quad 2 \leq x \leq 4$$

3. Write the definite integral for the area of the surface generated by revolving the curve about the  $y$ -axis.

$$y = \sqrt[3]{x} + 4, \quad 1 \leq x \leq 64$$

4. Write the definite integral for the area of the surface generated by revolving the curve about the  $y$ -axis.

$$y = 4 - x^2, \quad 0 \leq x \leq 2$$

5. Write the definite integral for the area of the surface generated by revolving the curve about the  $y$ -axis.

$$y = \sqrt{36 - x^2}, \quad 0 \leq x \leq 5$$