

Calculus Review Practice Sets for Integrals

Directions: Simplify answers completely. Evaluate trig functions completely. Do not leave negative exponents in your answers. No calculators. No notes.

Practice Set A Problems	Practice Set B Problems	Practice Set C Problems
1. $\int \left(4x^3 + \frac{1}{3x^2} + e^2 \right) dx$	1. $\int \frac{dy}{(3y+1)^3}$	1. $\int_1^4 2\sqrt{x} dx$
2. $\int \frac{\sec^2 4x}{\tan 4x} dx$	2. $\int_1^3 6(2x-3)^2 dx$	2. $\int \tan^2 \pi x dx$
3. $\int_1^2 \frac{2}{3y^2} dy$	3. $\int 6 \sin \frac{t}{4} dt$	3. $\int_{-1/6}^{1/6} \cos \pi x dx$
4. $\int \cos^3 x \sin x dx$	4. $\int x^2 \sec^2(x^3 - 2) dx$	4. $\int \left(\frac{6}{\sqrt{x}} - \pi + x^5 \right) dx$
5. $\int \frac{x dx}{x^2 - 4}$	5. $\int_0^{1/3} 2 \sin \pi x dx$	5. $\int \sqrt{t} \cos(2t^{3/2}) dt$
6. $\int_0^1 5(4x-2)^4 dx$	6. $\int \left(6\sqrt{x} - \frac{4}{x^3} + \pi x^{-1} \right) dx$	6. $\int \frac{e^{2x}}{e^{2x} - 4}$
7. $\int (t+2)(t+5) dt$	7. $\int \sin^2 2x \cos 2x dx$	7. $\int \tan^2 x \sec^2 x dx$
8. $\int_0^{\pi/4} 5 \cos 2x dx$	8. $\int \frac{x^6 - 4x^2}{2x^4} dx$	8. $\int x^2 (x^{-1/2} - 2x^{3/2}) dx$
9. $\int 8xe^{2x^2+3} dx$	9. $\int e^{\pi z-1} dz$	9. $\int_0^1 6e^{2y-1} dy$
10. $\int x \sin(1-x^2) dx$	10. $\int_{-1}^e 4x^{-1} dx$	10. $\int 4\sqrt{2x-1} dx$

Calculus Review Practice Sets for Integrals – Answer Key

Practice Set A – Answers	Practice Set B - Answers	Practice Set C - Answers
1. $x^4 - \frac{1}{3x} + e^2x + C$	1. $-\frac{1}{6(3y+1)^2} + C$	1. $\frac{28}{3}$
2. $\frac{1}{4} \ln \tan 4x + C$	2. 28	2. $\frac{1}{\pi} \tan \pi x - x + C$
3. $\frac{1}{3}$	3. $-24 \cos \frac{t}{4} + C$	3. $\frac{1}{\pi}$
4. $-\frac{1}{4} \cos^4 x + C$	4. $\frac{1}{3} \tan(x^3 - 2) + C$	4. $12x^{1/2} - \pi x + \frac{1}{6}x^6 + C$
5. $\frac{1}{2} \ln x^2 - 4 + C$	5. $\frac{1}{\pi}$	5. $\frac{1}{3} \sin(2t^{3/2}) + C$
6. 16	6. $4x^{3/2} + \frac{2}{x^2} + \pi \ln x + C$	6. $\frac{1}{2} \ln e^{2x} - 4 + C$
7. $\frac{1}{3}t^3 + \frac{7}{2}t^2 + 10t + C$	7. $\frac{1}{6} \sin^3 2x + C$	7. $\frac{1}{3} \tan^3 x + C$
8. $\frac{5}{2}$	8. $\frac{1}{6}x^3 + \frac{2}{x} + C$	8. $\frac{2}{5}x^{5/2} - \frac{4}{9}x^{9/2} + C$
9. $2e^{2x^2+3} + C$	9. $\frac{1}{\pi} e^{\pi z-1} + C$	9. $3e - \frac{3}{e}$
10. $\frac{1}{2} \cos(1 - x^2) + C$	10. 4	10. $\frac{4}{3}(2x-1)^{3/2} + C$