

Integrating with LN is FUN!
AP Calculus AB

Name _____

Find the indefinite integral.

1. $\int \frac{1}{x-5} dx$

2. $\int \frac{1}{3x+2} dx$

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

4. $\int \frac{x}{\sqrt{9-x^2}} dx$

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

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

7. $\int \frac{x^3-6x-20}{x+5} dx$

8. $\int \frac{x^3-3x^2+4x-9}{x^2+3} dx$

9. $\int \frac{1}{x \ln(x^3)} dx$

10. $\int \frac{1}{x^{2/3}(1+x^{1/3})} dx$

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

12. $\int \frac{x^4+x-4}{x^2+2} dx$

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

14. $\int \frac{\cos \phi}{\sin \phi} d\phi$

15. $\int \frac{\cos t}{1+\sin t} dt$

16. $\int \frac{\sec x \tan x}{\sec x - 1} dx$

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ANSWERS

1. $\ln|x-5|+C$

2. $\ln|\sqrt[3]{3x+2}|+C$

3. $\frac{1}{3}\ln\left|\frac{1}{3-x^3}\right|+C$

4. $-\sqrt{9-x^2}+C$

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

6. $x^2+11x+19\ln|x-2|+C$

7. $\frac{1}{3}x^3-\frac{5}{2}x^2+19x-115\ln|x+5|+C$

8. $\frac{1}{2}x^2-3x+\ln\sqrt{x^2+3}+C$

9. $\frac{1}{3}\ln|\ln|x||+C$

10. $3(\ln x)^3+C$

11. $3\ln|1+x^{1/3}|+C$

12. $\frac{1}{3}x^3-2x+\frac{1}{2}\ln(x^2+2)+C$

13. $\frac{1}{3}x^3+5\ln|x-3|+C$

14. $\ln|\sin\phi|+C$

15. $\ln|1+\sin t|+C$

16. $\ln|\sec x-1|+C$