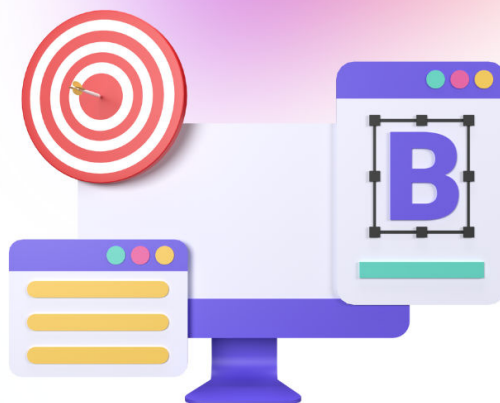


INTEGRATION

Integration is one of the most important generalities in mathematics. It's the process of changing the area under a wind, or more generally, the net change of a function over an interval. Integration has numerous operations in colorful fields, similar to engineering, wisdom, economics, and more. In this composition, we will explore the basics of integration, the crucial generalities and ways involved, the different types of integral functions, and some real-world exemplifications and problems.

[Read more](#)

Q1: What is $\int x^3 dx$?

- A: $4x^4 + C$
 - B: $\frac{2}{3} x^3 + C$
 - C: $x^4 + C$
 - D: $\frac{3}{4} x^4 + C$
-

Q2: What is $\int \cos x \, dx$?

- A: $\sin x + C$
 - B: $-\sin x + C$
 - C: $\cos x + C$
 - D: $-\cos x + C$
-

Q3: What is $\int x^{-1} dx$?

- A: $\ln|x| + C$
 - B: $x + C$
 - C: $e^x + C$
 - D: $x^2/2 + C$
-

Q4: What is $\int_0^1 x^2 \, dx$?

- A: $1/3$
 - B: $1/2$
 - C: 1
 - D: $4/3$
-

Q5: What is $\int e^x \sin x \, dx$?

- A: $e^x \sin x + C$
 - B: $e^x \cos x + C$
 - C: $2e^x(\sin x - \cos x) + C$
 - D: $2e^x(\sin x + \cos x) + C$
-

Q6: What is $\int \cot^2 x dx$?

- A: $\cot x - x + C$
 - B: $-\cot x - x + C$
 - C: $\cot x + x + C$
 - D: $-\cot x + x + C$
-

Q7: What is $\int e^x \cos x dx$?

- A: $e^x \cos x + C$
 - B: $e^x \sin x + C$
 - C: $e^x (\cos x - \sin x)/2 + C$
 - D: $e^x (\cos x + \sin x)/2 + C$
-

Q8: What is $\int (1+x)/(1-x) dx$?

- A: $-\ln |1-x| + C$
 - B: $\ln |1-x| + C$
 - C: $\ln |1+x| - \ln |1-x| + C$
 - D: $\ln |1+x| + \ln |1-x| + C$
-

Q9: What is $\int \sqrt{x^2+1} dx$?

- A: $(x/2)\sqrt{x^2+1} + (1/2)\sinh^{-1}(x) + C$
 - B: $(x/2)\sqrt{x^2+1} - (1/2)\sinh^{-1}(x) + C$
 - C: $(x/2)\sqrt{x^2+1} + (1/2)\cosh^{-1}(x) + C$
 - D: $(x/2)\sqrt{x^2+1} - (1/2)\cosh^{-1}(x) + C$
-

Q10: What is $\int_0^{\pi/4} \tan x dx$?

- A: 0
 - B: 1
 - C: -1
 - D: Does not exist
-



Answers

Q1: A - $4x^4 + C$

Q2: B - $-\sin x + C$

Q3: A - $\ln|x| + C$

Q4: A - $1/3$

Q5: C - $2e^x(\sin x - \cos x) + C$

Q6: B - $-\cot x - x + C$

Q7: D - $e^x (\cos x + \sin x)/2 + C$

Q8: C - $\ln|1+x| - \ln|1-x| + C$

Q9: A - $(x/2)\sqrt{x^2+1} + (1/2)\sinh^{-1}(x) + C$

Q10: D - Does not exist