Pemantapan

Ayo, Menyelesaikan Integral Tentu dan Integral Tak Tentu!

Lengkapi titik-titik berikut dengan teliti dan benar.

1. Integral tak tentu

   $\int 2x(x^2 + 3x - 9)dx$

   Jawaban:

   $$\begin{aligned}\int 2x(x^2 + 3x - 9)dx &= \int 2x(x^2 + 3x - 9)\,dx \\ &= \int (2x^3 + 6x^2 - 18x)dx \\ &= \int 2x^3dx + \int 6x^2dx - \int \ldots dx \\ &= 2\int x^3dx + \ldots \int x^2dx - 18\int xdx \\ &= 2 \times \frac{x^{3+1}}{\ldots+1} + 6 \times \frac{x^{2+1}}{\ldots+1} - \ldots \times \frac{x^{1+1}}{1+1} + C \\ &= 2 \times \frac{\ldots}{\ldots} + \ldots \times \frac{x^3}{\ldots} - 18 \times \frac{x^2}{\ldots} + C \\ &= \frac{1}{2}\ldots + 2x^3 - \ldots + C\end{aligned}$$

   Jadi, $\int 2x(x^2 + 3x - 9)dx = \frac{1}{2}x^4 + 2x^3 - \ldots + C$.

2. Integral tentu bentuk pangkat

   $\int_2^5 (3x - 5)(2x + 4)\,dx$

   Jawaban:

   $$\begin{aligned}\int_2^5 (3x - 5)(2x + 4)\,dx &= \int_2^5 \ldots x^2 + 2x - \ldots dx \\ &= [6 \times \frac{x^{2+1}}{2+1} + 2 \times \frac{x^{1+1}}{1+1} - \ldots]_2^5 \\ &= [\ldots + x^2 - 20x]_2^5 \\ &= (2 \times \ldots + 5^2 - 20 \times \ldots) - (2 \times 2^3 + \ldots - 20 \times \ldots) \\ &= (2 \times \ldots + 25 - 100) - (2 \times \ldots + 4 - \ldots) \\ &= (\ldots + 25 - 100) - (\ldots + 4 - 40) \\ &= 175 - \ldots \\ &= \ldots\end{aligned}$$

   Jadi, hasil dari $\int_2^5 (3x - 5)(2x + 4)\,dx$ adalah . . . .