

Answer on Question #45742 – Math – Integral Calculus

Question.

Determine $I = \int 4x^2 dx$, given that $I = 25$ when $x = 3$.

Solution.

$I = \int 4x^2 dx = \frac{4}{3}x^3 + c$. Let $x = 3$. Then $I = \frac{4}{3}3^3 + c = 36 + c = 25 \Rightarrow c = -11$. So

$$I = \frac{4}{3}x^3 - 11.$$

Answer. $I = \frac{4}{3}x^3 - 11$.