

Answer on Question #46047 – Math – Integral Calculus

Determine $I = \int 2e^x dx$, given that $I = 50.2$, when $x = 3$.

$e^3 + C$

$x + C$

$2e^x + 10$

$3ex + C$

Solution.

First of all we will find the indefinite integral:

$$I = \int 2e^x dx = 2 \int e^x dx = 2e^x + C.$$

We know, that $I = 50.2$, when $x = 3$. Hence, we can use this condition to calculate the constant C :

$$50.2 = 2e^3 + C,$$

$$C = 50.2 - 2e^3.$$

$e \approx 2.7183$, then $e^3 \approx 20.1$. It we can find with help of calculator.

Now we can evaluate C :

$$C = 50.2 - 2 \cdot 20.1 = 50.2 - 40.2 = 10.$$

Answer:

hence, our indefinite integral $I = 2e^x + 50.2 - 2e^3$ (approximately $I = 2e^x + 10$),

the third answer is correct