Answer on Question #45745 – Math – Integral Calculus

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

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 $I = 2e^x + 50.2 - 2e^3$ ($approximately\ I = 2e^x + 10$).