

Determine $I = \int 2 \cos x \, dx$, given that $I=7$, when $x=90$

- a) $\cos x + \sin x + c$
- b) $2 \sin x + 5$
- c) $\sin x + c$
- d) $\operatorname{cosec} x + c$

Solution

$$I = \int 2 \cos x \, dx = 2 \int \cos x \, dx$$

But

$$\int \cos x \, dx = \sin x + c$$

So

$$I = 2 (\sin x + c)$$

Let's find "c"

$$I = 7 = 2 (\sin 90 + c) = 2(1 + c) \rightarrow c = 2.5$$

and

$$I = 2 \sin x + 5$$

Answer: b) $2 \sin x + 5$.