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12:00

06/01/2021

ACHIA 9000

b) i) $\int 4x \cos 3x \, dx$

$$\frac{du}{dx} = 4 \quad v = -\frac{1}{3} \tan 3x$$

$$= -\frac{4x}{3} \tan 5x - \int -\frac{4}{5} \tan 5x \, dx$$

$$= -\frac{4x}{3} \tan 5x + \frac{-4}{5} \int \tan 5x \, dx$$

$$= \boxed{-\frac{4x}{3} \tan 5x + \frac{-4}{-20} \cos 5x + C}$$

ii)