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12:00

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[Pg. 3]
ACHA4000

Question Three

b) ~~$\int 4x \cos(3x) dx$~~

$$\int 4x \cos 3x dx$$

$$= 4x \int x \cos(3x) dx$$

$$= 4 \cdot \int \underbrace{u \cos(u)}_q du$$

$$= 4 \cdot \frac{1}{q} \cdot \int u \cos(u) du$$

$$= 4 \cdot \frac{1}{q} (u \sin(u) - (-\cos(u)))$$

~~$= \frac{4}{q} (3x \sin(3x) + \cos(3x))$~~

$$= \frac{4}{q} (3x \sin(3x) + \cos(3x))$$

$$= \frac{4}{q} (3x \sin(3x) + \cos(3x)) + C$$