

1. Calcolare i seguenti integrali:

(a) $\int_1^2 (x^2 + x + 1) \log(3x) \, dx,$

(b) $\int_0^2 x\sqrt{4-x^2} \, dx,$

(c) $\int_0^2 \sqrt{9-x^2} \, dx,$

(d) $\int_0^1 x \operatorname{arctg} x \, dx,$

(e) $\int_0^{\frac{\pi}{2}} e^{\operatorname{sen}^2 x} \operatorname{sen} x \cos x \, dx,$

(f) $\int_{-\pi}^{\pi} e^{\operatorname{sen}^2 x} \operatorname{sen}^3 x \cos x \, dx,$

(g) $\int_{\frac{1}{4}}^{\frac{1}{2}} \frac{1}{x^2} \log(1-x^2) \, dx,$

(h) $\int_2^4 \frac{1}{1-x^2} \, dx,$

(i) $\int_{-\frac{1}{2}}^{\frac{1}{2}} \frac{1}{1-x^2} \, dx,$

(j) $\int_0^1 x e^{\sqrt{x}} \, dx,$

(k) $\int_0^{\pi} \operatorname{arctg}(\operatorname{sen} x) \cos x \, dx,$

(l) $\int_1^5 \log^3(3x+1) \, dx,$

(m) $\int_0^{\frac{1}{\sqrt{2}}} x\sqrt{4-x^4} \, dx,$

(n) $\int_{\frac{\pi}{8}}^{\frac{\pi}{4}} \frac{\cos^3(2x)}{5\operatorname{sen}(2x)+\operatorname{sen}^2(2x)} \, dx,$

(o) $\int_0^7 \operatorname{arctg}\left(\frac{4}{x+7}\right) \, dx,$

(p) $\int_0^1 (3x + \sqrt{4-x^2}) \, dx.$