

Engenharia Civil

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Exercícios

Calcule as seguintes integrais

OBS: O valor ao lado é a resposta.

$$1) \int_1^2 5dx = 5$$

$$2) \int_1^2 8x^3 dx = 30$$

$$3) \int_0^1 4e^{-3x} dx = \frac{4}{3}(1 - e^{-3})$$

$$4) \int_1^4 3\sqrt{x} dx = 14$$

$$5) \int_0^5 e^{-2t} dt = \frac{1}{2}(1 - e^{-10})$$

$$6) \int_3^6 x^{-1} dx = \ln 2$$

$$7) \int_{-1}^1 \frac{4}{(t+2)^3} dt = 16/9$$

$$8) \int_2^3 (5-2t)^4 dt = 1/5$$

$$9) \int_0^3 (x^3 + x - 7) dx = 15/4$$

$$10) \int_2^4 \left(x^2 + \frac{2}{x^2} - \frac{1}{x+5}\right) dx = \frac{115}{6} - 2 \ln(3) + \ln(7)$$

Calcule as integrais definidas pelo teorema fundamental do cálculo

$$a) \int_1^2 (x^3 \cdot \sqrt{x^4 + 5}) dx = 13,59$$

$$b) \int_0^3 (-x^3 + \sqrt[3]{x}) dx = -17,005$$

$$c) \int_0^2 \frac{dx}{(x+3)} = 0,51$$

$$d) \int_1^2 x \cdot \ln(x) dx = 0,64$$

$$e) \int_0^2 -x \cdot \ln x dx = -0,39$$

$$f) \int_0^1 \frac{x^2 + 1}{\sqrt{x^3 + 3x}} dx = 4/3$$

$$g) \int_2^7 (x^2 - 2x) dx = 200/3$$

$$h) \int_0^4 (x^3 - x^2 + 1) dx = 140/3$$

$$i) \int_{-1}^3 (3x^3 + 5x - 1) dx = 76$$

$$j) \int_{-2}^0 3x\sqrt{4-x^2} dx = -8$$

$$l) \int_0^1 \frac{(x^2 + 2x)}{\sqrt[3]{x^3 + 3x^2 + 4}} dx = 2 - \sqrt[3]{2}$$

$$m) \int_0^{15} \frac{x}{(1+x)^{3/4}} dx = \frac{104}{5}$$

$$n) \int_{-1}^3 \frac{dx}{(x+4)^3} = \frac{20}{441}$$

$$o) \int_1^3 \frac{xdx}{(3x^2 - 1)^3} = \frac{7}{338}$$



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