

Cálculo 2
 PURO-UFF - 2017.1
 VS - 19/jul/2017 - Eduardo Ochs
 Respostas sem justificativas não serão aceitas.
 Proibido usar quaisquer aparelhos eletrônicos.

1) **(Total: 1.0)** Calcule

$$\int_{x=a}^{x=b} x\sqrt{1-x^2} dx.$$

2) **(Total: 1.0)** Teste o resultado do item anterior.

3) **(Total: 2.0)** Calcule

$$\int x \operatorname{sen} ax + b dx.$$

4) **(Total: 6.0)** Calcule

$$\int \frac{x}{x^2 + 1} dx.$$

Dicas: $\left[\begin{array}{l} s = \operatorname{sen} \theta \\ \sqrt{1-s^2} = \cos \theta \\ ds = \cos \theta d\theta \\ \theta = \operatorname{arcsen} s \end{array} \right], \left[\begin{array}{l} t = \tan \theta \\ \sqrt{1+t^2} = \sec \theta = z \\ dt = z^2 d\theta \\ \theta = \operatorname{arctan} t \end{array} \right], \left[\begin{array}{l} z = \sec \theta \\ \sqrt{z^2-1} = \tan \theta = t \\ dz = zt d\theta \\ \theta = \operatorname{arcsec} z \end{array} \right],$