**UNIVERSIDADE FEDERAL DA GRANDE DOURADOS**
**Cálculo Diferencial e Integral II — Lista 5**
**Prof. Adriano Barbosa**

(1) Determine quais das integrais são convergentes ou divergentes. Calcule as integrais convergentes.

(a) $\displaystyle\int_3^\infty \frac{1}{(x-2)^{3/2}}\,dx$

(b) $\displaystyle\int_{-\infty}^0 \frac{1}{3-4x}\,dx$

(c) $\displaystyle\int_{-\infty}^\infty xe^{-x^2}\,dx$

(d) $\displaystyle\int_0^\infty \operatorname{sen}^2(x)\,dx$

(e) $\displaystyle\int_{-\infty}^\infty \frac{x^2}{9+x^6}\,dx$

(f) $\displaystyle\int_0^\infty \frac{e^x}{e^{2x}+3}\,dx$

(g) $\displaystyle\int_0^1 \frac{3}{x^5}\,dx$

(h) $\displaystyle\int_0^9 \frac{1}{\sqrt[3]{x-1}}\,dx$

(i) $\displaystyle\int_{-1}^0 \frac{e^{1/x}}{x^3}\,dx$

(j) $\displaystyle\int_0^2 z^2 \ln z\,dz$

(2) Determine os valores de $p$ para os quais as integrais abaixo sejam convergentes:

(a) $\displaystyle\int_1^\infty \frac{1}{x^p}\,dx$

(b) $\displaystyle\int_0^1 \frac{1}{x^p}\,dx$