**UNIVERSIDADE FEDERAL DA GRANDE DOURADOS**
**Profª. Karla Lima**

**Cálculo II** 22 de Setembro de 2017

(1) Calcule a integral fazendo a substituição dada.

a) $\int_1^2 \frac{dx}{(3-5x)^2}$, $u = 3 - 5x$.

b) $\int_0^{\pi} \cos(3x)dx$, $u = 3x$.

c) $\int_0^1 x(4+x^2)^{10}dx$, $u = 4 + x^2$.

d) $\int_0^{\pi/2} \cos^3\theta \text{sen}\theta d\theta$, $u = \cos\theta$.

e) $\int_0^1 (x^2-1)^4 x^5 dx$, $u = x^2 - 1$.

(2) Avalie a integral definida.

a) $\int_0^1 \cos(\pi t/2)dt$.

b) $\int_1^2 \frac{e^{1/x}}{x^2}dx$.

c) $\int_e^{e^4} \frac{dx}{x\sqrt{\ln x}}dx$.

d) $\int_0^1 \frac{e^z+1}{e^z+z}dz$.

e) $\int_0^1 \frac{dx}{1+\sqrt{x}}$.

**Gabarito**

(1) a) $\frac{1}{14}$

b) $0$

c) $\frac{5^{11}-4^{11}}{22}$

d) $\frac{1}{4}$

e) $\frac{1}{210}$

(2) a) $\frac{2}{\pi}$

b) $e - \sqrt{e}$

c) $2$

d) $\ln(e+1)$

e) $2 - 2\ln 2$