MAT 1352 - CÁLC. PARA FUNÇÕES DE UMA VAR. II
2º SEMESTRE 2013

LISTA 3

1. Determine as seguintes primitivas:

(a) $\int \cos^2 x\, dx$;
(b) $\int \cos^4 x\, dx$;
(c) $\int \cos^4(3x)\, dx$;
(d) $\int \cos^5 x\, dx$;
(e) $\int \operatorname{sen}^3(\frac{x}{2}) \cos^5(\frac{x}{2})\, dx$;
(f) $\int \frac{1}{\operatorname{sen}^5 x \cos^3 x}\, dx$;
(g) $\int \operatorname{tg}^2 x \sec^4 x\, dx$;
(h) $\int \operatorname{tg}^3 x \sec^5 x\, dx$;
(i) $\int \frac{\operatorname{sen}^2 x}{\cos^4 x}\, dx$;
(j) $\int \frac{x^2}{\sqrt{1-x^2}}\, dx$;
(k) $\int \frac{1}{\sqrt{2-2x+x^2}}\, dx$;
(l) $\int \sqrt{4x^2-9}\, dx$;
(m) $\int \sqrt{9-4x^2}\, dx$;
(n) $\int \sqrt{9+4x^2}\, dx$;
(o) $\int \sqrt{x^2-2x+2}\, dx$;
(p) $\int \sqrt{x^2-6x+8}\, dx$;
(q) $\int \frac{1}{(1+x^2)\sqrt{1-x^2}}\, dx$;
(r) $\int \frac{x^2}{2x-x^2}\, dx$;
(s) $\int \frac{\sqrt{x^2-9}}{x^3}\, dx$;
(t) $\int \sqrt{1+x^2}\, x^5\, dx$.

2. Calcule as seguintes integrais definidas:

(a) $\int_0^{\pi/6} \cos^3 x\, dx$;
(b) $\int_0^{\pi/4} \sec^4 x\, dx$;
(c) $\int_{\pi/3}^{\pi/2} \frac{\cos^5 x}{\operatorname{sen}^3 x}\, dx$;
(d) $\int_0^1 x^2\ \sqrt{1-x^2}\, dx$;
(e) $\int_0^{\pi/3} \frac{1}{\sqrt{4+9x^2}}\, dx$;
(f) $\int_1^3 \sqrt{3-2x-x^2}\, dx$.

3. Determine as seguintes primitivas:

(a) $\int \operatorname{sen}^2 x \cos^3 x\, dx$;
(b) $\int \frac{\sqrt{9-t^2}}{t^2}\, dt$;
(c) $\int e^{\sqrt{x}}\, dx$;
(d) $\int \operatorname{tg} x \sec^3 x\, dx$;
(e) $\int x \operatorname{sen} x\, dx$;
(f) $\int (\ln x)^2\, dx$;
(g) $\int \frac{100}{36+25x^2}\, dx$;
(h) $\int x\, e^{-x}\, dx$;
(i) $\int \operatorname{sen}(\ln x)\, dx$;
(j) $\int \frac{x^2-1}{x}\, dx$;
(k) $\int \operatorname{tg}^3 x \sec^3 x\, dx$;
(l) $\int \frac{x}{x^2-4}\, dx$;
(m) $\int \frac{1}{1+e^x}\, dx$;
(n) $\int x^3\, e^{x^2}\, dx$;
(o) $\int \operatorname{sen}^2 x \cos^2 x\, dx$;
(p) $\int e^{-x} \cos(2x)\, dx$.