FTC

TEXT: 4.4

LAST NAME	FIRST NAME	DATE

1 (8 points). Find the derivative of the given function.

(a) $f(x) = \int_x^0 \sqrt{t(t+1)}\, dt$

(b) $g(x) = \int_1^{e^x} \ln(t)\, dt$

(c) $h(x) = \int_{\sqrt{x}}^{\pi/4} \theta \tan(\theta)\, d\theta$

2 (12 points). Evaluate the integral.

(a) $\displaystyle\int_{-1}^{1} x^{100}\,dx$

(b) $\displaystyle\int_{0}^{4} (4-t)\sqrt{t}\,dt$

(c) $\displaystyle\int_{0}^{3} (2\sin(x)-e^{x})\,dx$

(d) $\displaystyle\int_{1}^{3} \frac{y^3-2y^2-y}{y^2}\,dy$