

SI Session: July 28th, 2008
Mondays – Thursdays
12:35 PM – 2:05 PM
Room 1229

Prof. Stockton : Calculus II
Summer II 2008
SI Leader : Neil Jody

[1] Evaluate each integral.

(a) $\int \frac{x^2 + x + 3}{x^4 + 6x^2 + 9} dx$

(b) $\int \tan^3 x \sec^5 x dx$

$$(c) \int_0^2 e^{-x} \cos(x) dx$$

$$(d) \int x^3 \sin 3x dx$$

$$(e) \int_{-\pi}^{\pi} \sin(3\theta)\cos(\theta)d\theta$$

$$(f) \int \sqrt{4-9x^2} dx$$

(g) $\int \cos(\ln x) dx$

(h) $\int \frac{1}{x - \sqrt{x}} dx$

$$(i) \int \sqrt{3 - 2x - x^2} dx$$

$$(j) \int \frac{2x^2 + 13}{(1-x)(x^2 + 4)} dx$$

[2] Evaluate each limit. Your answer should be a number, ∞ , $-\infty$, or DNE.

(a) $\lim_{x \rightarrow 2^-} \frac{\sqrt{4-x^2}}{x-2}$, form:

(b) $\lim_{x \rightarrow 1} \frac{\arctan(x) - \left(\frac{\pi}{4}\right)}{x-1}$, form:

(c) $\lim_{x \rightarrow +\infty} \frac{\sin(x)}{x - \pi}$, form:

(d) $\lim_{x \rightarrow 0^+} (e^x + x)^{2/x}$, form:

(e) $\lim_{x \rightarrow +\infty} (1+x)^{1/x}$, form:

(f) $\lim_{x \rightarrow 1^+} (\ln x)^{(x-1)}$, form:

(g) $\lim_{x \rightarrow +\infty} x \tan\left(\frac{1}{x}\right)$, form:

[3] Determine if each improper integral converges or diverges. If it converges, state its value.

(a) $\int_0^{\infty} \frac{1}{4+x^2} dx$