SI Session: July 31st, 2008
Mondays – Thursdays
12:35 PM – 2:05 PM
Room 1229

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

[1] Simplify the ratio of factorials.

(a) $\frac{10!}{8!}$

(b) $\frac{25!}{23!}$

(c) $\frac{(n+2)!}{n!}$

(d) $\frac{(n-1)!}{n!}$

(e) $\frac{(2n-1)!}{(2n+1)!}$

(f) $\dfrac{(2n+2)!}{(2n)!}$

(g) $\dfrac{\left((n+1)!\right)^2}{n!(n+2)!}$

(h) $\dfrac{\left((n+1)!\right)^2}{(n!)^2}$

[2] Determine the convergence or divergence of the sequence with the given *n*th tern. If the sequence converges find its limit.

(a) $a_n = \dfrac{3n^2 - n + 4}{2n^2 + 1}$

(b) $a_n = 1 + (-1)^n$

(c) $a_n = \dfrac{\sqrt[3]{n}}{\sqrt[3]{n} + 1}$

(d) $a_n = \dfrac{1 + (-1)^n}{n^2}$

(e) $a_n = \dfrac{\ln\sqrt{n}}{n}$

(f) $a_n = \left(0.5\right)^n$

(g) $a_n = \dfrac{\left(n-2\right)!}{n!}$

(h) $a_n = n \sin\left(\frac{1}{n}\right)$

(i) $a_n = 2^{1/n}$

(j) $a_n = \frac{\sin n}{n}$