

## Math 152 Quiz #8 Answers

1.  $\frac{2}{3}[4\ln(3) + 2\ln(5) + 4\ln(7) + 2\ln(9) + 4\ln(11) + \ln(13)]$

2. (a) Using L'Hospital's twice:  $\lim_{t \rightarrow \infty} \frac{t+1}{(\ln(t))^2} = \lim_{t \rightarrow \infty} \frac{t}{2\ln(t)} = \lim_{t \rightarrow \infty} \frac{t}{2} = \infty$

(b)  $\int_1^{\infty} \frac{4x}{(x^2+1)^3} dx = \lim_{t \rightarrow \infty} \int_1^t \frac{4x}{(x^2+1)^3} dx = \lim_{t \rightarrow \infty} -\frac{1}{(x^2+1)^2} \Big|_1^t = \frac{1}{4}$

(Using substitution with  $u = x^2 + 1$   $du = 2x dx$ )