Calculus II
Practice Problems 6

Determine whether or not the integral converges. If it does, try to find its value (you may not be able to do this in some cases).

1. $\displaystyle\int_2^{\infty} \frac{dx}{x(\ln x)^2} =$

2. $\displaystyle\int_1^{10} \frac{dx}{x\sqrt{\ln x}} =$

3. $\displaystyle\int_{1/5}^{\infty} \frac{\ln(5x)}{x^2}\,dx =$

4. $\displaystyle\int_{-\infty}^{\infty} \frac{dx}{(1+x^2)^{3/2}} =$

5. $\displaystyle\int_0^{\pi/2} \frac{dx}{1-\cos x} =$

6. $\displaystyle\int_0^{1} \frac{dx}{(1-x)^{3/2}} =$

7. $\displaystyle\int_0^{1/2} \frac{dx}{\sqrt{x}(1-x)}$

8. Find the area under the curve $y = (x^2 - x)^{-1}$, above the x-axis and to the right of the line $x = 2$.