Evaluate the improper integrals that converge.

1) $\displaystyle\int_0^\infty \frac{1}{1+x^2}\,dx$

2) $\displaystyle\int_0^\infty \frac{\log x}{x^2}\,dx$

3) $\displaystyle\int_e^\infty \frac{1}{x\log x}\,dx$

4) $\displaystyle\int_0^1 \frac{dx}{\sqrt{x}}$

5) $\int\limits_{0}^{2} \dfrac{x}{\sqrt{1-x^2}}\,dx$

6) $\int\limits_{0}^{\infty} \dfrac{dx}{x(\ln x)^2}$

7) $\int\limits_{0}^{1} x \ln x \, dx$

8) $\displaystyle\int_{0}^{5} \frac{x}{\sqrt{x^2-9}}$

9) $\displaystyle\int_{0}^{1} x \ln x \, dx$

10) $\displaystyle\int_{0}^{5} \frac{x}{\sqrt{x^2-9}}$