Generalized (Improper) Integrals

67. Evaluate the following integral if it converges:

$$\int_{-\infty}^{+\infty} \frac{|x|}{1+x} \, dx.$$

68. Check whether the improper integral $\int_{-\infty}^{0} \frac{e^{1/x}}{x^2} \, dx$ converges. If it does, compute its value.

Integral Test

69. Using the integral test, determine whether the series

$$\sum_{n=1}^{+\infty} \frac{2n}{n^2+1}$$

converges.

70. Using the integral test, determine whether the series

$$\sum_{n=2}^{\infty} \frac{1}{n \ln n}$$

converges.

71. Using the integral test, determine whether the series

$$\sum_{n=1}^{\infty} \frac{\ln n}{n}$$

converges.

72. Using the integral test, determine whether the series

$$\sum_{n=1}^{\infty} \arcsin \frac{1}{\sqrt{n}}$$

converges.

All above math problems are taken from the following website:
https://osebje.famnit.upr.si/~penjic/teaching.html.
THE READER CAN FIND ALL SOLUTIONS TO THE GIVEN PROBLEMS ON THE SAME PAGE.