Give the value of the integral if it converges, and enter the letter "D" if it diverges.

(1) $\displaystyle\int_1^\infty \frac{dx}{x^2} =$ [ ]

(2) $\displaystyle\int_1^\infty \frac{dx}{x} =$ [ ]

(3) $\displaystyle\int_1^\infty e^{-x}\,dx =$ [ ]

(4) $\displaystyle\int_1^\infty e^{x}\,dx =$ [ ]

(5) $\displaystyle\int_{-\infty}^\infty \frac{dx}{1+x^2} =$ [ ]

(6) $\displaystyle\int_{-\infty}^\pi e^{x}\,dx =$ [ ]

Give the value of the integral if it converges, and enter the letter "D" if it diverges.

(1) $\displaystyle\int_1^\infty \frac{dx}{x^2} =$ 1

(2) $\displaystyle\int_1^\infty \frac{dx}{x} =$ D

(3) $\displaystyle\int_1^\infty e^{-x}\,dx =$ e^{-1}

(4) $\displaystyle\int_1^\infty e^{x}\,dx =$ D

(5) $\displaystyle\int_{-\infty}^\infty \frac{dx}{1+x^2} =$ π

(6) $\displaystyle\int_{-\infty}^\pi e^{x}\,dx =$ e^{π}