1. Do the following series converge absolutely, converge conditionally, or diverge?

(a) $\sum_{n=1}^{\infty}(-1)^{n+1}\frac{1}{n^2+7}$

(b) $\sum_{n=1}^{\infty}(-1)^{n}\frac{1}{n+7}$

(c) $\sum_{n=1}^{\infty}(-1)^{n}\frac{n+1}{n^2+7n-1}$

(d) $\sum_{n=1}^{\infty}(-1)^{n+1}\frac{n+2}{n^3+7n-1}$

(e) $\sum_{n=2}^{\infty}(-1)^{n+1}\frac{\ln(n)}{n^3}$

(f) $\sum_{n=2}^{\infty}(-1)^{n+1}\frac{\ln(n)}{n}$

2. Do the following series converge absolutely, converge conditionally, or diverge?

(a) $\sum_{n=1}^{\infty}(-1)^{n+1}\frac{3+n}{5+n}$

(b) $\sum_{n=1}^{\infty}(-1)^{n+1}\frac{n}{n^2+1}$

(c) $\sum_{n=1}^{\infty}(-1)^{n+1}\frac{n}{n^4+1}$

(d) $\sum_{n=1}^{\infty}(-1)^{n+1}\frac{1}{1+\sqrt{n}}$

(e) $\sum_{n=1}^{\infty}(-1)^{n+1}\left(1+\frac{1}{n}\right)^2 e^{-n}$

(f) $\sum_{n=1}^{\infty}(-1)^{n+1}\left(1-\frac{1}{n}\right)^n$

(g) $\sum_{n=1}^{\infty}(-1)^{n+1}\left(\frac{1}{\sqrt{n}}-\frac{1}{\sqrt{n+1}}\right)$

(h) $\sum_{n=1}^{\infty}(-1)^{n+1}(\sqrt{3})^n$

(i) $\sum_{n=1}^{\infty}\frac{1}{(2n)!}$

(j) $\sum_{n=1}^{\infty}(-1)^{n+1}\frac{n^4}{n^6+3}$

(k) $\sum_{n=2}^{\infty}(-1)^{n+1}\frac{1}{n\ln(n)}$

(l) $\sum_{n=1}^{\infty}\left(\frac{\ln n}{\ln n^2}\right)^n$

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

(n) $\sum_{n=1}^{\infty}(-1)^{n+1}\left(\frac{1}{\sqrt{n}}-\frac{1}{\sqrt{n+2}}\right)$

(o) $\sum_{n=4}^{\infty}\frac{1}{n^2-4n+5}$

(p) $\sum_{n=1}^{\infty}(-1)^{n+1}\ln(n)$

(q) $\sum_{n=1}^{\infty}\frac{3}{n(n+4)}$