1. Suppose $\{z_n\}_{n=1}^{\infty}$ is a sequence of real numbers. Decide whether the series $\sum_{n=1}^{\infty} z_n$ converges (and converges absolutely) in each of the following cases:

   (a) $z_n = \frac{1}{6n^2+7n+10}$

   (b) $z_n = \frac{3^n}{2^n+8^n}$

   (c) $z_n = \frac{3}{5^{\frac{1}{n}}+6}$

   (d) $z_n = \frac{4}{(-3)^{n-1}} - \frac{3}{3^{n-1}}$

   (e) $z_n = \frac{(-1)^{n-1}}{3n+4}$

   (f) $z_n = \frac{(-1)^{n-1}n}{3n-2}$

   (g) $z_n = \frac{(-1)^n}{3n^2+2n+8}$

   (h) $z_n = \frac{n!}{n^n}$

   (i) $z_n = \frac{(n!)^2}{n^n}$