1. Let $I = \displaystyle\int_1^\infty \frac{\pi}{x^3 + 2x + 7} \ dx$

   a. Show that I converges

   b. How closely does the definite integral $I_1 = \displaystyle\int_1^7 \frac{\pi}{x^3 + 2x + 7} \ dx$
      approximate I?

   c. Find a definite integral that approximates I accurate with 0.005

2. Find the exact value of each integral.

   a. $\displaystyle\int_{1/2}^\infty \frac{\arctan(2x)}{1 + 4x^2} \ dx$

   b. $\displaystyle\int_1^\infty x^3 e^{-x^2} \ dx$