1. Write each of the following functions, \( h(x) \), in the form \( h(x) = f(g(x)) \). Identify the functions \( f(x) \) and \( g(x) \). The apply the chain rule, \( h'(x) = f'(g(x))g'(x) \) to find the derivative of \( h(x) \).

   a) \( h(x) = (\sin(x) + 1)^7 \)
   b) \( h(x) = \cos(5\sqrt{x}) \)
   c) \( h(x) = \tan(\sin(x) + \cos(x)) \)

2. Compute the following derivatives. (You can use the chain rule without making up functions \( f(x) \), \( g(x) \), or \( h(x) \).)

   a) \( \frac{d}{dt} \frac{t}{\sqrt{t^2 + 1}} \)
   b) \( \frac{d}{dx} (3\sin(x^2) + 2\cos(x^3)) \)
   c) \( \frac{d}{dz} \cos(z \sin(z)) \)

3. Compute the following derivatives. Each of these problems require you to use the chain rule more than once.

   a) \( \frac{d}{dx} \sqrt{\frac{4 + \sin(x^4)}{5 + \cos(x^5)}} \)
   b) \( \frac{d}{d\theta} \sin(\sin(\theta))) \)