

1. [8 points] Parts **a.** and **b.** are unrelated.

**a.** [4 points] Let  $f(x)$  and  $h(x)$  be functions given by the formulas:

$$f(x) = \sqrt{1 + \pi\sqrt{x}} \quad \text{and} \quad h(x) = \sqrt{x}.$$

You do not need to show work for this part.

(i) Find a formula for a function  $s(x)$  such that  $f(x) = s(h(x))$ .

**Answer:**  $s(x) =$  \_\_\_\_\_

(ii) Find a formula for a function  $r(x)$  such that  $f(x) = h(r(x))$ .

**Answer:**  $r(x) =$  \_\_\_\_\_

**b.** [4 points] Given the function  $K = g(c)$  below, find a formula for  $g^{-1}(K)$ . *Show all of your work.*

$$K = g(c) = \frac{\ln(c^{10}) - \ln(c^7)}{\log(10^4)}$$

**Answer:**  $g^{-1}(K) =$  \_\_\_\_\_