

For full credit, you must show all work and circle your final answer.

- 1 Use the fundamental theorem of calculus to find the derivative of the given function.

$$h(x) = \int_1^{\sqrt{x}} \frac{z^2}{z^4 + 1} dz$$

- 2 Find the general indefinite integral.

$$\int \left( \frac{1+r}{r} \right)^2 dr$$

- 3 Use a substitution to evaluate the following indefinite integral.

$$\int \cos^3(\theta) \sin(\theta) d\theta$$