Quiz 1

Name & ID # : _____

Directions: Leave your final answer in exact form and box it in. You are more than welcome to write on the back if you find it necessary.

Notation: The composition of two functions is formally defined as $f \circ g = f(g)$. The set $\mathbb{R}_{\geq 0}$ denotes the collection of strictly non-negative real numbers whereas $\mathbb{R}$ denotes all real numbers.

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(1) Write down the explicit formula modeling an exponential function that passes through the points $(1, 6)$ and $(3, 24)$.

(2) Determine the functions $f \circ g$, $g \circ f$, $f \circ f$, and $g \circ g$ along with their domains given that:

$$f : \mathbb{R}_{\geq 0} \to \mathbb{R}_{\geq 0} \quad \text{where} \quad f(x) = \sqrt{x}$$
$$g : \mathbb{R} \to \mathbb{R} \quad \text{where} \quad g(x) = \sqrt[3]{1 - x}$$