

Math 2215 - Calculus 1

Quiz #2 - 2005.08.29

Solutions

Let $g(x) = \sqrt{x-3}$ and $h(x) = -x + 1$. Answer the following questions.

1. What is the domain of $g(x)$?

The domain of $g(x)$ is $[3, \infty)$.

2. What is the domain of $h(x)$?

The domain of $h(x)$ is \mathbb{R} .

3. What is the domain of $(g \circ h)(x)$?

To compute the domain of the composite function, notice that the domain of $g(x)$, found in problem 1, is $[3, \infty)$. We need to determine all the values a in the domain of h such that $h(a) \in [3, \infty)$. This gives the inequality

$$-x + 1 \geq 3.$$

Solving for x gives the domain of $(g \circ h)(x)$ to be $(-\infty, -2]$.

4. What is $(g \circ h)(x)$?

The composite function $(g \circ h)(x)$ is given by $g(h(x)) = \sqrt{-x-2}$.