MCS-236 Non-textbook Homework Exercise 6

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Example 2.3 on page 389 shows that the function $f : \mathbf{R} \to \mathbf{R}$ defined by $f(x) = 3x - 8$ for all $x \in \mathbf{R}$ is bijective. Consider the following two slight variations of the function definition:

1. The function $g : \mathbf{Z} \to \mathbf{Z}$ is defined by $g(x) = 3x - 8$ for all $x \in \mathbf{Z}$.

2. The function $h : \mathbf{Q} \to \mathbf{Q}$ is defined by $h(x) = 3x - 8$ for all $x \in \mathbf{Q}$.

Is each of these functions bijective?