Consider the following functions with domain and codomain the positive integers. Determine which are one-to-one, which are onto, and which are bijections. If a function is not one-to-one, give two values that have the same image. If a function is not onto, give a value that is not the image of anything.

1. $f(n) = 2n$.

2. $g(n)$ is defined as the number of factors of $n$. (We define a factor as positive and include the number itself. For example, $g(4) = 3$.)

3. $h(n) = \begin{cases} n - 2 & \text{if } n \text{ is a multiple of } 3 \\ n + 1 & \text{otherwise} \end{cases}$