(2.) (5 points) Suppose f is a function that satisfies the following three properties:

1. f is a power function.
2. $f(1) = -7$.
3. $f(2x) = 8f(x)$, for every x.

Determine the exact formula for $f(x)$.

(3.) (6 points) Let $f(x) = \frac{x^2-1}{x-1}$, and let $g(x) = x + 1$.

(a) Are f and g the same function? Why or why not?

(b) Let h be the function whose output is always 4, except that $h(-1)$ is undefined. Write a formula for $h(x)$ as a rational function.