1) Graph each function and identify the asymptotes. Find the domain and range for each function.

a) \[ R(x) = \frac{-2x^2 + 1}{2x^3 + 4x^2} \]

b) \[ G(x) = \frac{x^3 - 1}{x - x^2} \]

c) \[ H(x) = \frac{x - 1}{x - x^3} \]

d) \[ K(x) = \frac{x^2 + x - 12}{x^2 - x - 6} \]

e) \[ L(x) = \frac{4x^5}{x^3 - 1} \]

2) \[ f(x) = \frac{6x}{4x - 1} \quad \text{and} \quad g(x) = \frac{2x + 1}{4x - 1} \]

a) find \( f(g(x)) \) and graph
b) find \( g(f(x)) \) and graph
c) identify the asymptotes if possible

3) \[ y = f(x) = (x + 2)^2 \]
graph and determine whether \( y \) is one-to-one. (Explain)

b) If \( f(x) \) is not one-to-one then find domain over which \( f(x) \) is one-to-one.
c) Use Maple to find the inverse of \( f(x) \) for the restricted domain found in part b).
d) Graph both \( f(x) \) and its inverse.

4) Find the inverse of the following and state the domain (Hint: solve for \( x \)):

a) \[ w(x) = \frac{2}{3 + x} \]

b) \[ h(x) = \frac{-3x - 4}{2x - 3} \]

c) \[ k(x) = \ln x \]

d) Graph each function with its inverse on the same \( x-y \) coordinate systems.

5) Graph the following function and its inverse on the same \( x-y \) axes.

\[ g(x) = 3 - 2x \]

**What general conclusion can you draw when graphing a function and its inverse?**