1. Determine algebraically whether the function $f(x) = \dfrac{5x - \sqrt[3]{x}}{x^2 - 7}, x \neq \pm\sqrt{7}$ is odd, even or neither.

2. The functions f and g are defined as follows:

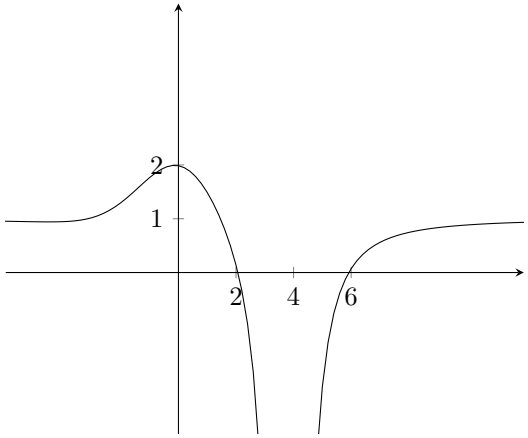
$$f : x \to \frac{x-3}{x+2}, x \neq -2$$
$$g : x \to 3x + 1, x > -1$$

   (a) Sketch the graph of f, clearly indicating the asymptote(s)

   (b) Evaluate $(f^{-1} \circ g)(2)$

   (c) Given that $(f \circ h)(x) = \dfrac{e^{2x} + 1}{e^{2x} + 6}$, find the function h.

3. The diagram below illustrates the graph of $y = f(x)$, whose asymptotes are $y = 1$ and $x = 4$ and $P(0, 2)$ is a turning point. The graph cuts the x-axis at $x = 2$ and $x = 6$.



   (a) Find the equation of the asymptotes and the coordinates of the point corresponding to P on the graph of $y = f(-2x) + 1$

   (b) State the interval(s) for which the graph of $y = \dfrac{1}{f(x)}$ is strictly increasing.