1. Find equations of the tangent lines to the curve \( y = \frac{x - 1}{x + 1} \) that are parallel to the line \( x - 2y = 2 \).

2. If \( f(x) = (1 - x)^{-1} + e^{-2x} \), then find \( f^{(100)}(0) \).
3. If \( f(x) = \frac{g(\sqrt{x})}{2g(x) + 1} \), \( g(1) = 2 \) and \( g'(1) = -1 \), then find \( f'(1) \)

4. Find the equation of the tangent line to the curve \( y = \pi x^2 + \cos \left( \frac{\pi}{2} x \right) \)
5. Find a parabola with equation \( y = ax^2 + bx + c \) that has slope 4 at \( x = 1 \), slope \(-8\) at \( x = -1 \), and passes through the point \((2, 15)\).

6. Find If \( g(x) = \sqrt{f(x)} \), where the graph of \( f \) is shown, evaluate \( g'(3) \).