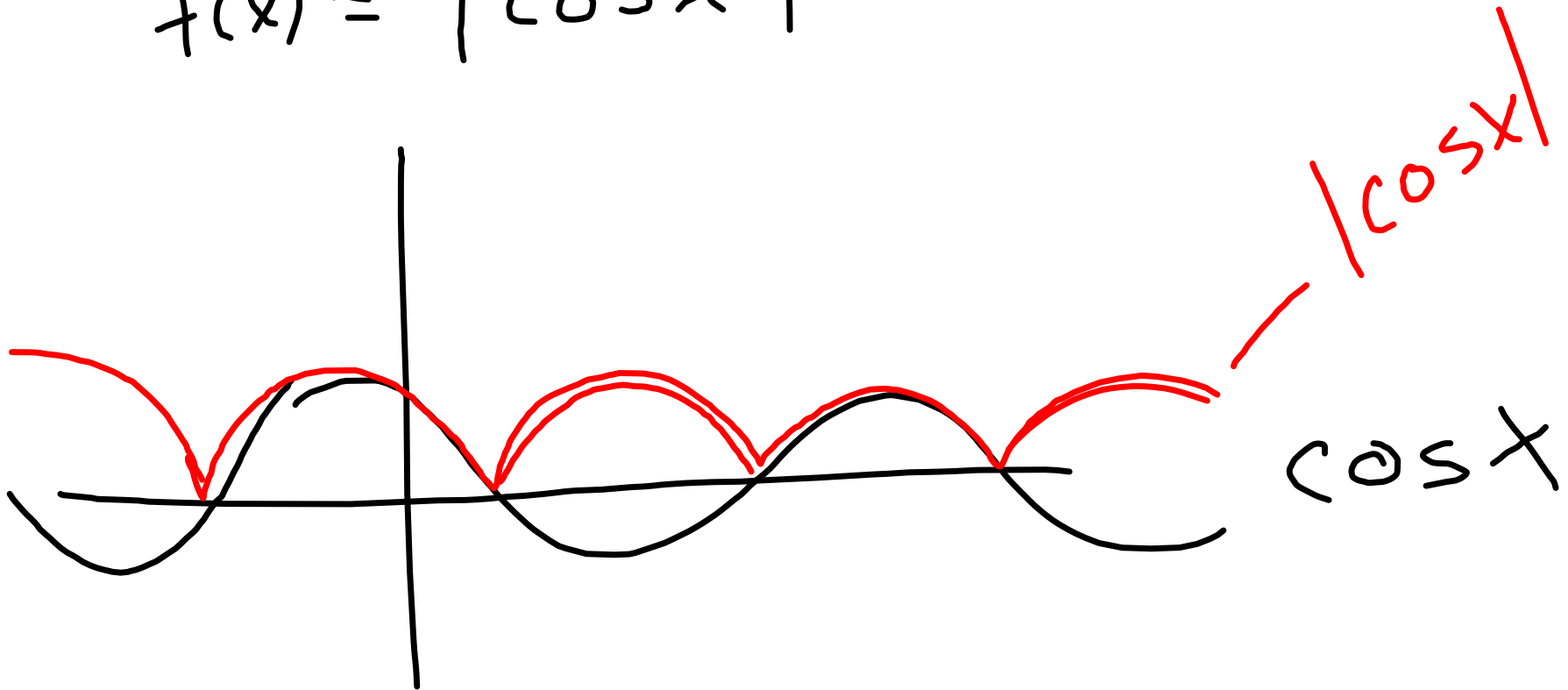
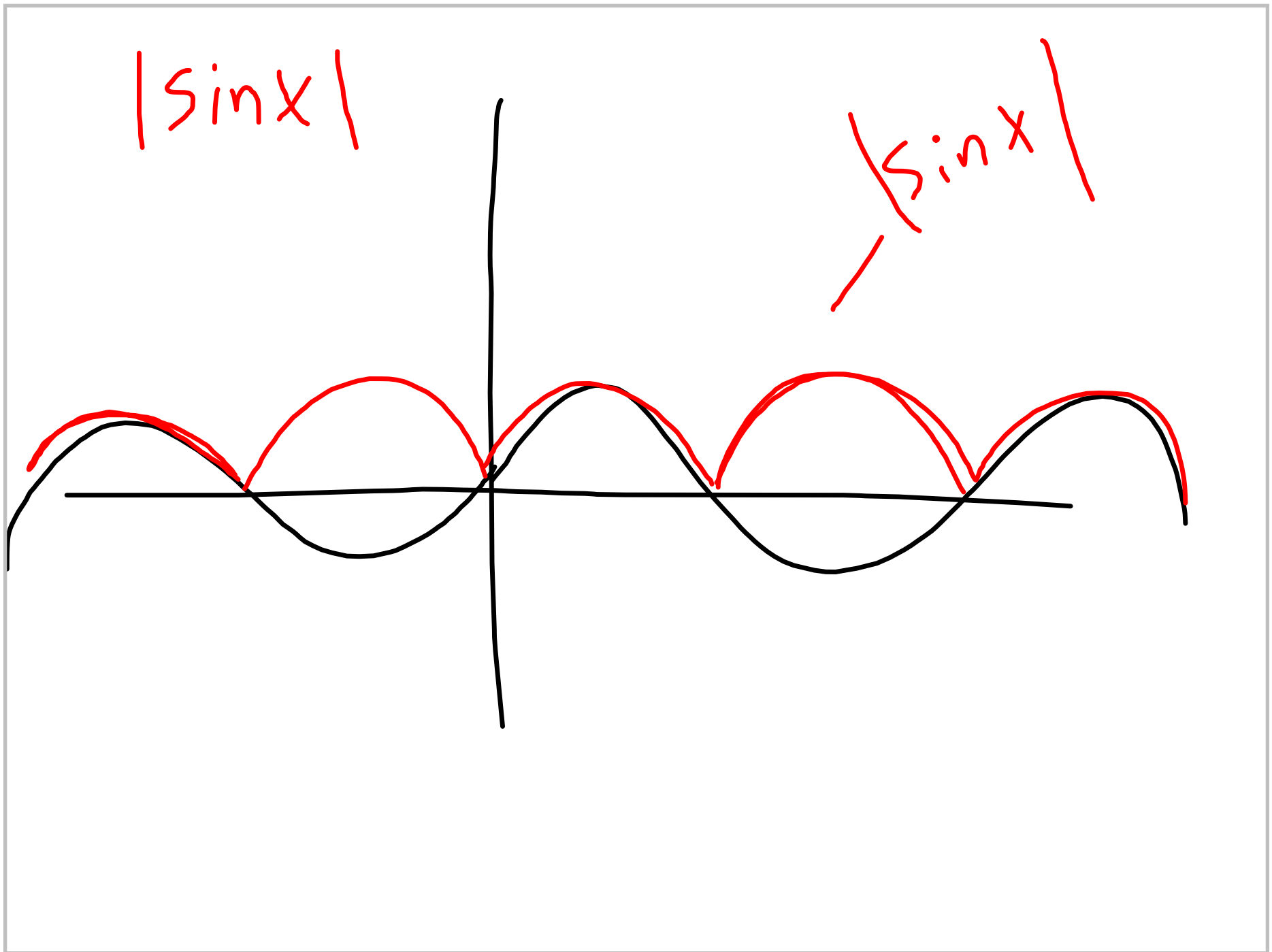


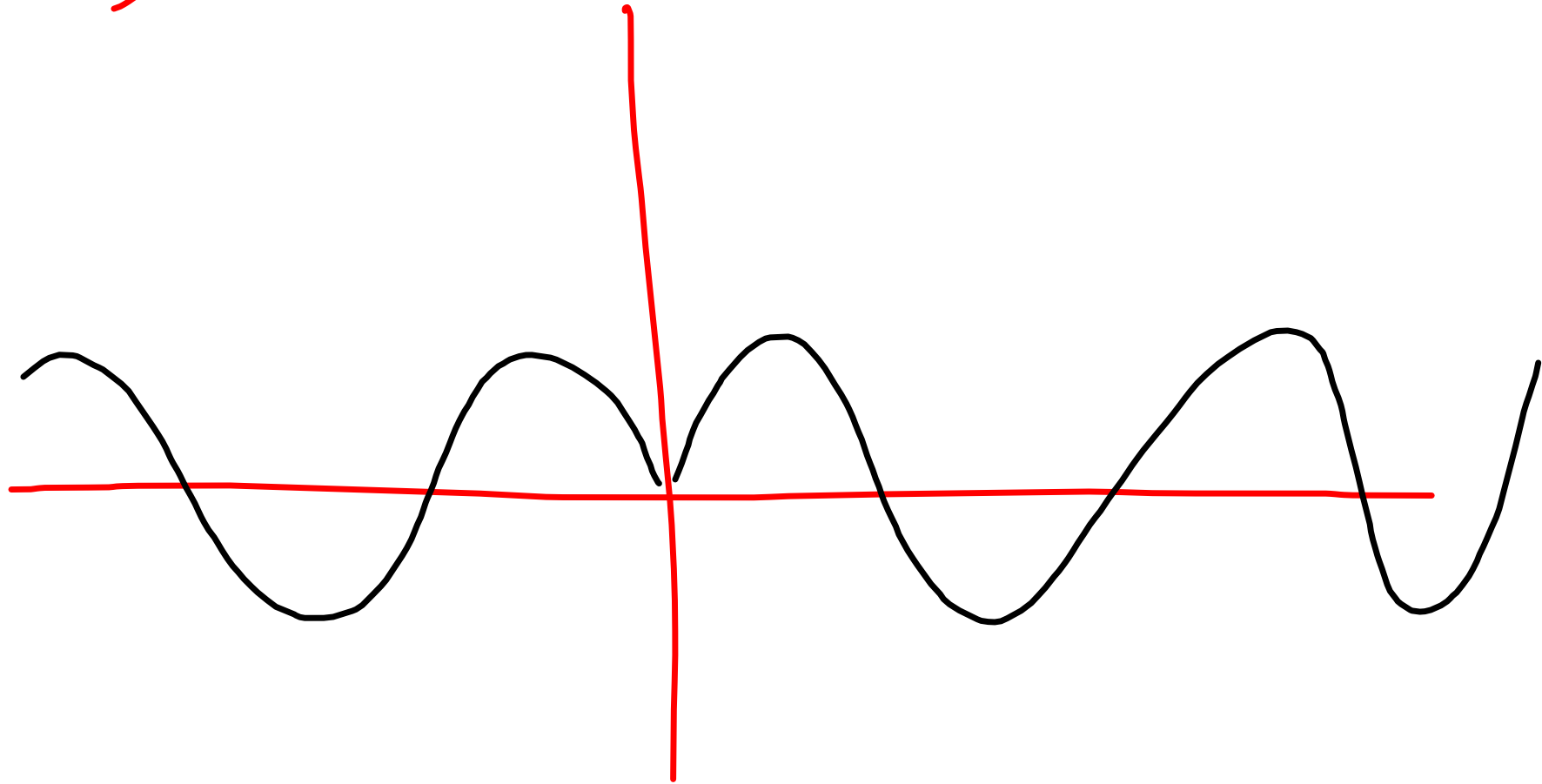
eg

$$f(x) = |\cos x|$$





$\sin |x|$



36.

$$f(x) = 1 - x^3$$

$$g(x) = \sqrt[3]{x}$$

$$f \circ g = f(g(x)) = 1 - (g(x))^3$$

$$g \circ g = g(g(x)) = \frac{1}{g(x)} = \frac{1}{\sqrt[3]{x}} = 1 - \left(\frac{1}{x}\right)^3 = 1 - \frac{1}{x^3}$$

$$g(x) = \frac{x^2 + 1}{\sin x - 3}$$

$$g \circ g = g(g(x)) = \frac{(g(x))^2 + 1}{\sin(g(x)) - 3}$$

$$= \frac{\left(\frac{x^2 + 1}{\sin x - 3}\right)^2 + 1}{\sin\left(\frac{x^2 + 1}{\sin x - 3}\right) - 3}$$

$$g(x) = \frac{2x+1}{x-2}$$

$$g \circ g = g(g(x)) = \frac{2g(x)+1}{g(x)-2}$$

$$= \frac{2\left(\frac{2x+1}{x-2}\right) + 1}{\frac{2x+1}{x-2} - 2} = \frac{\frac{4x+2}{x-2} + 1}{\frac{2x+1}{x-2} - 2}$$

$$\frac{4x+2 + x-2}{2x+1 - 2(x-2)} = \frac{5x}{5} = x$$

with  $x \neq 2$ .