8. Show that \( f \) and \( g \) are inverse functions using the definition (algebraically).

\[
\begin{align*}
\text{let show: } f(g(x)) &= x \\
\Leftrightarrow g(f(x)) &= x \\
\text{now: } f(g(x)) &= f(\sqrt[3]{3-x^3}) \\
&= 3 - (\sqrt[3]{3-x^3})^2 \\
&= 3 - (3-x) \\
&= x
\end{align*}
\]

\[\therefore f \text{ and } g \text{ are inverses.}\]

9. Use the graphs of \( f \) and \( g \) to evaluate each of the functions below (recall \( (f \circ g)(x) = f(g(x)) \)).

10. Determine whether the function \( g(x) = x^6 - \frac{3}{2} x^4 + 3x^2 - 2x \) is even, odd or neither, please show your work using the definitions for odd and even functions.

\[\text{even: } g(-x) = g(x) \quad \forall x \quad \text{odd: } g(-x) = -g(x) \quad \forall x\]

\[\text{here: } g(x) = (-x)^6 - \frac{3}{2} (-x)^4 + 3 (-x)^2 - 2 (-x) = x^6 - \frac{3}{2} x^4 + 3x^2 + 2x \neq g(x)\]

\[\text{Nor does not equal } -g(x)\]

\[\therefore g \text{ is neither.}\]