

Provide a clear and organized presentation. Give exact values only and completely simplify all values. Determine the amount of work required to pump the water out of the following tank through the spout atop if it is full of water.

$$W = 9800 \int_1^{\cosh 2} 40(4 + \cosh 2 - y) \cosh^{-1} y \, dy$$
$$+ 9800 \int_{\cosh 2}^{3+\cosh 2} \frac{40}{3} (4 + \cosh 2 - y)(y + 6 - \cosh 2) \, dy$$