14.52: Following the hint,

\[ F = \int_0^h (\rho g y) \left( 2 \pi R \right) dy = \rho g \pi R h^2 \]

where \( R \) and \( h \) are the radius and height of the tank (the fact that \( 2R = h \) is more or less coincidental). Using the given numerical values gives \( F = 5.07 \times 10^8 N \).