The amount of work done in blowing up a soaps bubble of radius 2cm is (given surface tension of soap solution =4 into 10 raise to power minus 2 N/m)

The work done in blowing up a soaps bubble equals surface energy of bubble:

$$A = E_S = \gamma_s S$$

where γ_s- surface tension, $S = 4\pi r^2$ - area of the bubble, r – radius of the bubble

Therefore:

$$A = 4\pi r^2 \gamma_s = 4 * 3.14 * (0.02\ m)^2 * 4 * 10^{-2}\ \frac{N}{m} = 2 * 10^{-4}\ J$$

Answer: $2 * 10^{-4}\ J$