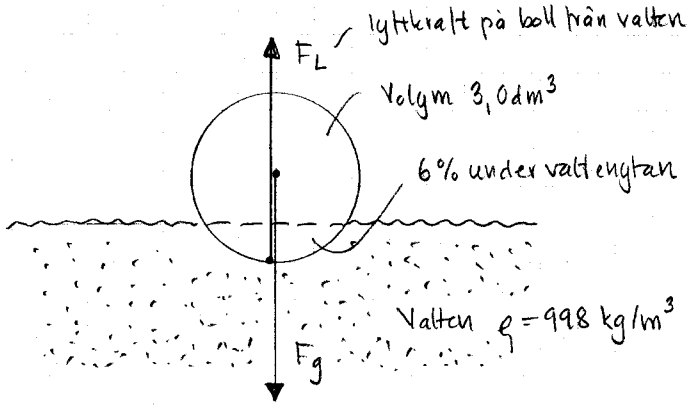
7.08

(a)



Sökt: Badbollens massa m

Undanträngda vätskevolymen

$1\,m^3 = 10 \cdot 10 \cdot 10\,dm^3 = 1000\,dm^3$

$$V = 0{,}060 \cdot 3{,}0\,dm^3 = \{1\,dm^3 = 10^{-3}\,m^3\} = 0{,}060 \cdot 3{,}0 \cdot 10^{-3}\,m^3$$
$$= 1{,}8 \cdot 10^{-4}\,m^3$$

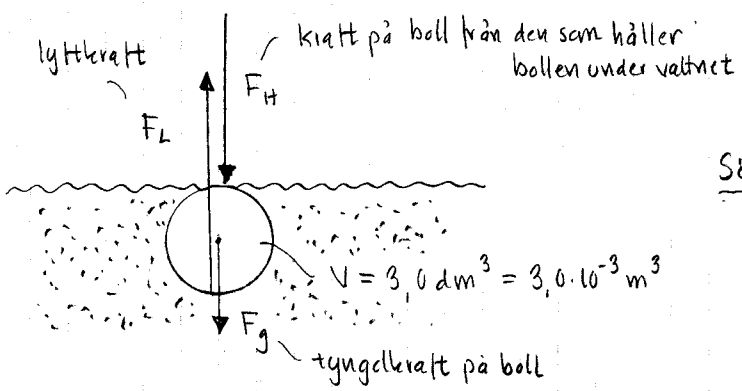
Badbollen är i jämvikt vilket ger

$$F_L = F_g$$

$$\varrho V g = mg \quad \Rightarrow m = \varrho V = 998 \cdot 1{,}8 \cdot 10^{-4}\,kg = 0{,}18\,kg$$

Svar: 0,18 kg

(b)



Sökt: Kraften F_H

Kraftjämvikt ger

$$F_H + F_g = F_L$$

$$F_H = F_L - F_g = \varrho V g - mg = (998 \cdot 3{,}0 \cdot 10^{-3} \cdot 9{,}82 - 0{,}18 \cdot 9{,}82)\,N = 27{,}6\,N$$

Svar: 28 N