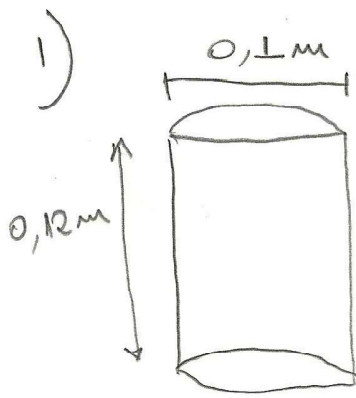


Dicas Lista Unidade do solo

1



$$m = 1,7 \text{ Kg}$$

$$m_a = 0,26 \text{ Kg}$$

$$\rho_s = 2650 \text{ Kg/m}^3$$

a) $V = \frac{m_a}{\rho_s}$ $\rightarrow$ ρ_s $\rightarrow$ $m = m_a + m_s$

$$m_s = m - m_a$$

c) $h = \theta \cdot Z$ $\rightarrow$ h do cilindro
(resultado em m, $\times 1000 = \text{mm}$)

d) $d = \frac{m_s}{V} = 1528,66 \text{ Kg/m}^3$ ou $1,528 \text{ g/cm}^3$

e) $\alpha = \left(1 - \frac{d}{\rho_s}\right) = \left(1 - \frac{1528,66}{2650}\right) =$

$$1 \text{ m}^3 \text{ água} = 1000 \text{ Kg} = 1000 \text{ g}$$

$$x = 0,261 \text{ g}$$

b) $\theta = \frac{V_a}{V_o}$

$$\frac{\pi d^2}{4} \cdot h \text{ (do anel)}$$

$$9,42 \cdot 10^{-4} \text{ m}^3$$

2) $m = 220 \text{ Kg}$ $U = 0,18 \text{ Kg/Kg}$

$m_s = ?$ $m_a = ?$

$m = m_a + m_s$

$$U = \frac{m_a}{m_s} \Rightarrow 0,18 = \frac{m_a}{m_s} \Rightarrow m_a = 0,18 m_s$$

$$220 = 0,18 m_s + m_s$$

Resolução da equação

3) $Z = 0,8 \text{ m}$ $\theta_1 = 0,13 \text{ m}^3 \text{ água/m}^3 \text{ solo}$ $\theta_2 = 0,3 \text{ m}^3/\text{m}^3$

$$h = (\theta \cdot Z) \Rightarrow (\theta_2 - \theta_1) \cdot Z = \text{--- m} \times 1000 = \text{--- mm}$$

$$4) \theta_1 = 0,1 \text{ m}^3/\text{m}^3$$

$$h = 100 \text{ mm}$$

$$\theta_2 = 0,3 \text{ m}^3/\text{m}^3 \quad z = ?$$

(2)

$$h = (\theta_2 - \theta_1) \cdot z$$

$$0,1 \text{ m} = (\theta_2 - \theta_1) \cdot z \Rightarrow 0,5 \text{ m}$$

$$5) h = ? \quad (0,3 - 0,1) \cdot 1,25 = 0,25 \text{ m}$$

$$6) m_D = 0,1 \text{ kg}$$

$$\theta = 0,25 \text{ m}^3/\text{m}^3$$

$$m = m_a + m_s$$

$$d_{\text{solo}} = 1200 \text{ kg}/\text{m}^3 / 1000 \rightarrow \text{p/ para p/g}$$

$$m = ?$$

$$U = \frac{m_a}{m_s}$$

$$\theta = U \cdot d$$

$$0,25 = U \cdot 1200 \text{ kg}/\text{m}^3$$

$$0,2083 = \frac{m_a}{0,1}$$

$$U = 2,083 \cdot 10^{-4} \frac{\text{m}^3 \text{ água}}{\text{kg solo seco}}$$

$$m_a = 0,02083 + 0,1$$

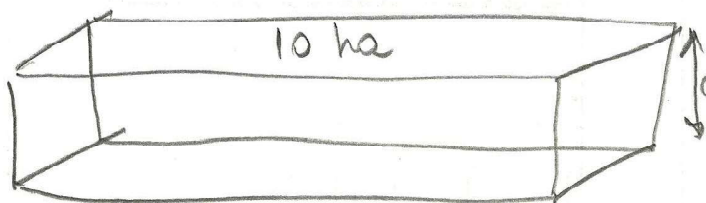
$$0,12083 \text{ kg}$$

$$\text{para p/ kg/kg} \cdot \frac{1}{1000} =$$

$$1 \text{ m}^3 = 1000 \text{ kg}$$

$$2,083 \cdot 10^{-4} = X \quad X = 0,2083 \frac{\text{kg H}_2\text{O}}{\text{kg solo}}$$

7)



$$10 \text{ ha} = 100\,000 \text{ m}^2$$

$$V = 30\,000 \text{ m}^3$$

$$m_s = ?$$

$$\text{Libras} = ?$$

$$U = 0,2 \frac{\text{kg água}}{\text{kg solo}}$$

$$U = \frac{m_a}{m_s}$$

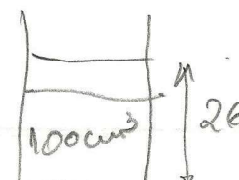
$$\rho = 1700 \frac{\text{kg solo}}{\text{m}^3 \text{ solo}} \left(\frac{m_s}{V} \right)$$

$$1700 = \frac{m_s}{V}$$

m_s em kg

$$0,2 = \frac{m_a}{m_s}$$

$$m_a \text{ em kg}$$

10)  $d_s = \frac{m_s}{V_s} = \frac{P_s}{V_s} = \frac{458}{(269-100)} = 2,71 \text{ g/cm}^3$

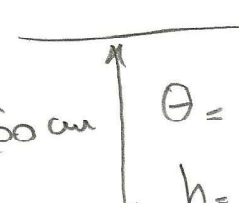
11) ~~Porosidade total (α) $\alpha = \left(1 - \frac{1,38}{2,71}\right) = 49,08\%$~~
~~" livre de água $\alpha = 0 = 0,4908 - 0,3078 = 0,183$~~
~~18,3%~~
~~saturação relativa $= \frac{30,78\%}{49,08\%} = 62,71\%$~~

resposta está errada.

12) $V = 200 \text{ cm}^3$
 $Z = 10 \text{ cm}$

①	②
$m = 332 \text{ g}$	$m = 360 \text{ g}$
$m_s = 281 \text{ g}$	$m_s = 305 \text{ g}$
$d = \frac{m_s}{V} = 1,405 \text{ g/cm}^3$	$1,525 \text{ g/cm}^3$
$m_a = m - m_s$ $U = \frac{m_a}{m_s} = 18,15\%$	$18,03\%$
$\theta = \frac{U d}{V} = 25,5\%$	$27,5\%$
$\alpha = 1 - \frac{d}{d_p} = 47,96\%$	$\alpha = 43,52\%$

2,7 $\rightarrow d_p$

13)  $\theta = 38,3\%$
 $h = \theta \cdot Z = 0,383 \cdot 60 = 22,98 \text{ cm ou } 229,8 \text{ mm}$