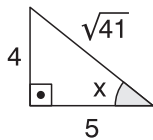


01)  $\operatorname{tg} x = \frac{4}{5}$  e  $\operatorname{sen} x < 0 \rightarrow x \in 3\text{CQ}$ .



$$\rightarrow \operatorname{sen} x = \frac{4}{\sqrt{41}} \cdot \frac{\sqrt{41}}{\sqrt{41}} = \frac{-4\sqrt{41}}{41}$$

$$\rightarrow \operatorname{cos} x = \frac{5}{\sqrt{41}} \cdot \frac{\sqrt{41}}{\sqrt{41}} = \frac{-5\sqrt{41}}{41}$$

$$\operatorname{sen} x + 2 \cdot \operatorname{cos} x = \frac{-4\sqrt{41}}{41} + 2 \cdot \frac{-5\sqrt{41}}{41} = \frac{-4\sqrt{41}}{41} - \frac{10\sqrt{41}}{41} = \frac{-14\sqrt{41}}{41}$$

02)  $A = \begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix} = \begin{pmatrix} 0 & -2 & -3 \\ 2 & 0 & -1 \\ 2 & 1 & 0 \end{pmatrix}$

$$B = \begin{pmatrix} b_{11} & b_{12} & b_{13} \\ b_{21} & b_{22} & b_{23} \\ b_{31} & b_{32} & b_{33} \end{pmatrix} = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 3 & 6 & 9 \end{pmatrix}$$

a)  $A \cdot B = \begin{pmatrix} 0 & -2 & -3 \\ 2 & 0 & -1 \\ 2 & 1 & 0 \end{pmatrix} \cdot \begin{pmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 3 & 6 & 9 \end{pmatrix} = \begin{pmatrix} -13 & -26 & -39 \\ -1 & -2 & -3 \\ 4 & 8 & 12 \end{pmatrix}$

b)  $B \cdot A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 3 & 6 & 9 \end{pmatrix} \cdot \begin{pmatrix} 0 & -2 & -3 \\ 2 & 0 & -1 \\ 2 & 1 & 0 \end{pmatrix} = \begin{pmatrix} 8 & 1 & -1 \\ 20 & 2 & -2 \\ 30 & 3 & -3 \end{pmatrix}$

c)  $A^2 = \begin{pmatrix} 0 & -2 & -3 \\ 2 & 0 & -1 \\ 2 & 1 & 0 \end{pmatrix} \cdot \begin{pmatrix} 0 & -2 & -3 \\ 2 & 0 & -1 \\ 2 & 1 & 0 \end{pmatrix} = \begin{pmatrix} -10 & -3 & 2 \\ -2 & -5 & -6 \\ 2 & -4 & -7 \end{pmatrix}$

d)  $B^2 = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 3 & 6 & 9 \end{pmatrix} \cdot \begin{pmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 3 & 6 & 9 \end{pmatrix} = \begin{pmatrix} 15 & 28 & 42 \\ 28 & 56 & 84 \\ 42 & 84 & 126 \end{pmatrix}$

03) a)  $M = d \cdot T \cdot 1000 / \text{mol}$   
 $M = 1,84 \cdot 0,96 \cdot 1000/98$   
 $M = 18 \text{ mol/L}$

b)  $2 M_A \cdot V_A = M_B \cdot V_B$   
 $2 \cdot 18 \cdot V_A = 1200 \cdot 5$   
 $V_A = 166,67 \text{ mL}$

04) a)  $C = 36,9 \text{ g}$   
 $H = 5,6 \text{ g}$   
 $O = 4,9 \text{ g}$

C    47,4 g    \_\_\_\_\_    100%  
       36,9 g    \_\_\_\_\_    x

$x = 77,85\%$

H    47,4 g    \_\_\_\_\_    100%  
       5,6 g    \_\_\_\_\_    y

$y = 11,81\%$

O    47,4 g    \_\_\_\_\_    100%  
       4,9 g    \_\_\_\_\_    z

$z = 10,34\%$

$$b) C = \frac{77,85\%}{12}$$

$$C = \frac{6,48}{0,64} = 10,125$$

$$H = \frac{11,81\%}{1}$$

$$H = \frac{11,81}{0,64} = 18,45$$

$$O = \frac{10,34\%}{16}$$

$$O = \frac{0,64}{0,64} = 1$$

$$c) C \quad 12 \text{ g} \quad \underline{\quad} \quad 1 \text{ mL} \\ 36,9 \text{ g} \quad \underline{\quad} \quad x$$

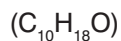
$$x = \frac{3}{0,3} = 10$$

$$H \quad 1 \text{ g} \quad \underline{\quad} \quad 1 \text{ mL} \\ 5,6 \text{ g} \quad \underline{\quad} \quad x$$

$$x = \frac{5,6}{0,3} \cong 18,66 \cong 18$$

$$O \quad 16 \text{ g} \quad \underline{\quad} \quad 1 \text{ mL} \\ 4,9 \text{ g} \quad \underline{\quad} \quad x$$

$$x = \frac{0,3}{0,3} = 1$$



05) a) Epígea e hipógea, respectivamente.

b) Luminosidade e quantidade de água.

c) Armazenamento de nutrientes.

06) a) Célula vegetal, pela presença da parede celular e do vacúolo de suco celular.

b) Parede celular, cloroplastos, hialoplasma, núcleo, mitocôndria e vacúolo de suco celular, respectivamente.

c) Proteção mecânica e sustentação, armazenamento de substâncias (água e pigmentos acessórios).