

Por exemplo, se seu número de matrícula for 12.1.3579, temos que

**12.1.3579**

↑ ↑ ↑ ↑ ↑ ↑  
 1° 2° 3° 4° 5° 6° 7°

e a tabela deve ser preenchida assim:

xx	0	1	2	3	4	5	6	7	8	9
1°										
2°										
3°										
4°										
5°										
6°										
7°										

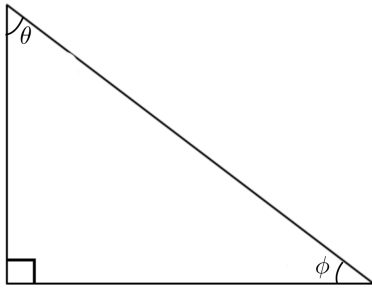
1. A particle of mass 7,7 kg is subject to an external force of 14,0 N. Calculate the acceleration in  $\text{m/s}^2$  in a one-dimensional movement.

- (a) 12,3 (b) 6,9  
 (c) 5,1 (d) 15,1  
 (e) 1,8

2. Mark the true alternative.

- (a) A vector multiplied by a scalar results is a vector with different direction.  
 (b) Vectors can not be multiplied by scalars.  
 (c) The result of a scalar product between vectors is a vector itself.  
 (d) The vectorial product between collinear vectors is zero.  
 (e) Division between vectors is defined in Mathematics.

3. Consider the rectangle triangle of the figure below and knowing  $\theta = 21^\circ$ , determine  $\phi$  **in rad**.



- (a) 1,273 (b) 1,025 (c) 1,115 (d) 1,309 (e) 1,204

## Fórmulas e Constantes

$$I = \frac{P_s}{4\pi r^2}; \quad E = hf; \quad p = \frac{hf}{c} = \frac{h}{\lambda}$$

$$hf = K_{\max} + \Phi; \quad \Delta\lambda = \frac{h}{mc}(1 - \cos\phi)$$

$$\frac{d^2\psi}{dx^2} + \frac{8\pi^2m}{h^2}[E - U(x)]\psi = 0$$

$$T \approx e^{-2bL}, \text{ onde } b = \sqrt{\frac{8\pi^2m(U_b - E)}{h^2}}$$

$$E_n = \left( \frac{h^2}{8mL^2} \right) n^2, \text{ para } n = 1, 2, 3, \dots$$

$$\psi_n(x) = A \sin\left(\frac{n\pi}{L}x\right), \text{ para } n = 1, 2, 3, \dots$$

$$\Delta x \Delta p = h/2\pi$$

$$\epsilon_0 = 8,854 \times 10^{12} \text{ F/m}; \quad \mu_0 = 1,257 \times 10^{-6} \text{ H/m}$$

$$c = 3,0 \times 10^8 \text{ m/s}; \quad h = 6,63 \times 10^{-34} \text{ J/s} = 4,14 \times 10^{-15} \text{ eV.s}$$

$$hc = 1240 \text{ eV.nm}$$

$$\text{Eletron: } mc^2 = 511 \text{ keV}$$

NÃO MARCAR										
un	—		—	—	—	—	—	—	—	—
GABARITO										
—	1	2	3	—	—	—	—	—	—	—
a				—	—	—	—	—	—	—
b				—	—	—	—	—	—	—
c				—	—	—	—	—	—	—
d				—	—	—	—	—	—	—
e				—	—	—	—	—	—	—
MATRÍCULA										
—	0	1	2	3	4	5	6	7	8	9
1°										
2°										
3°										
4°										
5°										
6°										
7°										

MATRÍCULA:

NOME:

TURMA: