Universidade, Faculdade, Escola

Instituto, se aplicável

Departamento, se aplicável

Prof. Nome

Prova/Teste 1 – Física I/Cálculo I– 1/1/2023

Alguma mensagem importante, se necessário

Fórmulas e Constantes

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

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

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

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

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

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

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

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

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

$hc = 1240$ eV.nm

Eletron : $mc^2 = 511$ keV

Exemplo

1° ... 7°

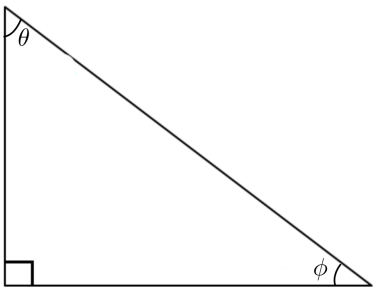
Para matrícula 20.1.3579, marque:

MATRÍCULA										
–	0	1	2	3	4	5	6	7	8	9
1°			■							
2°	■									
3°		■								
4°				■						
5°						■				
6°								■		
7°										■

1. Mark the true alternative.
(a) If $\vec{A}$ and $\vec{B}$ are vectors, then $\vec{A} \times \vec{B}$ is a vector perpendicular to both $\vec{A}$ and $\vec{B}$.
(b) A vector multiplied by a scalar results is a vector with different direction.
(c) The result of a scalar product between vectors is a vector itself.
(d) Vectors can not be multiplied by scalars.
(e) Division between vectors is defined in Mathematics.

2. A particle of mass 6,8 kg is subject to an external force of 14,4 N. Calculate the acceleration in m/s^2 in a one-dimensional movement.
(a)2,1 (b)14,4
(c)9,1 (d)5,4
(e)11,8

3. Consider the rectangle triangle of the figure below and knowing $\theta = 15°$, determine ϕ **in rad**.



(a)1,141 (b)1,252 (c)1,309 (d)1,209 (e)1,078

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

MATRÍCULA:

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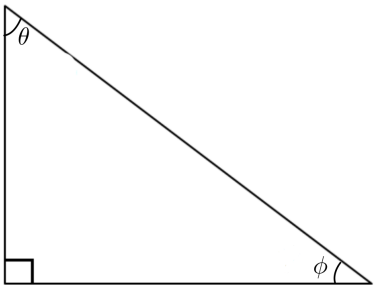
Prova/Teste 1 – Física I/Cálculo I– 1/1/2023

Alguma mensagem importante, se necessário

1. A particle of mass 9,1 kg is subject to an external force of 15,6 N. Calculate the acceleration in m/s^2 in a one-dimensional movement.
(a)15,3 (b)11,5
(c)8,4 (d)4,7
(e)1,7

2. Mark the true alternative.
(a) The result of summing a vector and a scalar is a scalar.
(b) The result of a scalar product between vectors is a vector itself.
(c) Vectors can not be multiplied by scalars.
(d) If $\vec{A}$ and $\vec{B}$ are vectors, then $\vec{A}\times\vec{B}$ is a vector perpendicular to both $\vec{A}$ and $\vec{B}$.
(e) Division between vectors is defined in Mathematics.

3. Consider the rectangle triangle of the figure below and knowing $\theta = 29°$, determine ϕ **in rad**.



(a)1,182 (b)1,269 (c)1,065 (d)1,313 (e)1,108

Fórmulas e Constantes

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

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1°			■							
2°	■									
3°		■								
4°				■						
5°						■				
6°								■		
7°										■

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°										

NOME:

MATRÍCULA: