

$$E_k = \frac{1}{2} m v^2 \quad \tan \theta_B = \frac{w_2}{w_1} = w_{21} \quad pV = nRT \quad \vec{\psi} = \iint \vec{D} d\vec{S} = AD \quad H_\lambda = \frac{\Delta M_e}{\Delta \lambda}$$

$$-\frac{\hbar^2}{2m} \frac{d^2 \psi}{dx^2} + V\psi = E\psi \quad M_e = \sigma T^4 \quad \Phi_e = \frac{L}{4\pi r^2} \quad \int \frac{\Delta \varphi}{2\pi} = \frac{\Delta x}{\lambda_1} = \frac{x_2 - x_1}{\lambda} S_2 \quad V = c/\lambda \quad \Phi = NBS$$

$$U_{ef} = \frac{U_m}{E} \quad E = \hbar \omega \quad \Delta t = \frac{\Delta t'}{\sqrt{1 - \frac{v^2}{c^2}}} \quad X_L = \frac{U_m}{I_m} = \omega L = 2\pi f L \quad F = \frac{m_1 m_2}{r^2} \quad \mathcal{H}$$

$$\vec{B} = \mu \frac{NI\sqrt{2}}{2\pi r m_e} \quad v = \frac{wh}{2\pi r m_e} \quad \Phi_E = \frac{E_e}{\Phi_0} = k \frac{\Phi}{r^2} \quad \Phi = |\varphi_A - \varphi_B| \quad T = \frac{4 n_1 n_2}{(n_2 + n_1)^2} \quad g = \frac{m_1 m_2}{r^2} \quad \mathcal{H}$$

$$k = \rho^2 \frac{\ell}{2m} \quad m_o = \frac{M_m}{N_A} = \frac{M_r \cdot 10^{-3}}{N_A} \quad \lambda = \frac{h}{\sqrt{2eUm_e}} \quad R = \rho \frac{\ell}{S}$$

$$f_o = \frac{1}{2\pi} \frac{1}{\ell} \quad \psi(x) = \sqrt{2/L} \sin \frac{n\pi x}{L}$$

$$\oint \vec{B} d\vec{\ell} = \mu \iint_S \vec{J} d\vec{S} \quad \vec{S} =$$

$$C(s) \quad v_k = \sqrt{\frac{3kT}{m_o}} = \sqrt{\frac{3kTN_A}{M_m}} = \sqrt{\frac{3R_m T}{M_r \cdot 10^{-3}}}$$

$$\lambda = \frac{\ln 2}{T} \quad F_h = Sh\rho g$$

$$\left(\frac{E_t}{E_o} \right)_{\parallel} = \frac{2 \cos \theta_1 \cos \theta_2}{\cos(\theta_1 - \theta_2) \sin(\theta_1 + \theta_2)}$$

$$E_y = E_o \sin(k_x x - \omega t) \quad R = R_o \sqrt[3]{A} \quad c(s) \rightarrow s \rightarrow \omega = U_m \sin \omega(t - \tau) = U_m \sin 2\pi \left(\frac{t}{T} - \frac{x}{\lambda} \right)$$

Tarea 1

Matemática Discreta

Andrés Montenegro

UTC

Ejercicios 5 y 6

- $U = \{1,2,3,4,5,6,7,8,9\}$
- $A = \{1,2,4,6,8\}$
- $B = \{2,4,5,9\}$
- $C = \{x \mid x \text{ es entero positivo y } x^2 \leq 16\} = \{1,2,3,4\}$
- $D = \{7,8\}$

5. Calcule

- $A \cup B = \{1,2,4,5,6,7,8,9\}$
- $A \cup C = \{1,2,3,4,6,8\}$
- $A \cup D = \{1,2,4,6,7,8\}$
- $B \cup C = \{1,2,3,4,5,9\}$
- $A \cap C = \{1,2,4\}$
- $A \cap D = \{1,2,4,6,7,8\}$
- $B \cap C = \{2,4\}$
- $C \cap D = \{\}$
- $A - B = \{1,6,8\}$
- $B - A = \{5,9\}$
- $C - D = \{1,2,3,4\}$
- $C' = \{5,6,7,8,9\}$
- $A' = \{3,4,7,9\}$
- $A + B = \{1,2,2,4,4,5,6,8,9\}$
- $C + D = \{1,2,3,4,7,8\}$

$$p. B + C = \{1,2,2,3,4,4,5,9\}$$

6. Calcule

a. $A \cup B \cup C = \{1,2,3,4,5,6,8,9\}$

b. $A \cap B \cap C = \{2,4\}$

c. $A \cap (B \cup C) = \{1,2,4\}$

d. $(A \cup B) \cap D = \{1,2,4\}$

e. $(A \cup B)' = \{3\}$

f. $(A \cap B)' = \{1,3,5,6,7,8,9\}$

g. $B \cup C \cup D = \{1,2,3,4,5,7,8,9\}$

h. $B \cap C \cap D = \{\}$

i. $A \cup A = \{1,2,4,6,8\}$

j. $A \cap A' = \{\}$

k. $A \cup A' = \{1,2,3,4,5,6,7,8,9\}$

l. $A \cap (C' \cup D) = \{6,8\}$

Ejercicios 7 y 8

- $U = \{a,b,c,d,e,f,g,h\}$
- $A = \{a,c,f,g\}$
- $B = \{a,e\}$
- $C = \{b,h\}$

7. Calcule

- a. $A' = \{\mathbf{b,d,e,h}\}$
- b. $B' = \{\mathbf{b,c,d,f,g,h}\}$
- c. $(A \cup B)' = \{\mathbf{b,d,h}\}$
- d. $(A \cap B)' = \{\mathbf{b,c,d,e,f,g,h}\}$
- e. $U' = \{\}$
- f. $A - B = \{\mathbf{c,f,g}\}$

8. Calcule

- a. $A' \cap B' = \{\mathbf{b,d,h}\}$
- b. $B' \cup C' = \{\mathbf{b,c,d,e,f,g,h}\}$
- c. $(A \cup A)' = \{\mathbf{b,d,e,h}\}$
- d. $C' \cap C' = \{\mathbf{a,c,d,e,f,g}\}$
- e. $A + B = \{\mathbf{a,a,c,e,f,g}\}$
- f. $B + C = \{\mathbf{a,b,e,h}\}$