	BCM SCHOOL BASANT AVENUE DUGRI ROAD LUDHIANA HOLIDAY HOMWORK CLASS XISC
1	If A and B are subsets of the universal set U, then show that $A \subset B \Leftrightarrow A \cup B = B$
2	For all sets A, B and C, show that $(A - B) \cap (C - B) = A - (B \cup C)$
3	Using properties of set prove the statement. For all sets A and B, prove that $A \cup (B - A) = A \cup B$.
4	Find the domain of each of the following functions given by (i) $f(x) = \dfrac{1}{\sqrt{1-\cos x}}$ (ii) $f(x) = \dfrac{1}{\sqrt{x+\|x\|}}$ (iii) $f(x) = x\|x\|$ (iv) $f(x) = \dfrac{x^3 - x + 3}{x^2 - 1}$ (v) $f(x) = \dfrac{3x}{28-x}$
5	Redefine the function: $f(x) = \|x - 1\| - \|x + 6\|$. Write its domain also.
6	In a group of 50 students, the number of students studying French, English, Sanskrit were found to be as follows: French = 17, English = 13, Sanskrit = 15 French and English = 09, English and Sanskrit = 4 French and Sanskrit = 5, English, French and Sanskrit = 3. Find the number of students who study i. French only ii. English only iii. Sanskrit only iv. English and Sanskrit but not French v. French and Sanskrit but not English vi. French and English but not Sanskrit vii. at least one of the three languages viii. none of the three languages
7	There are 200 individuals with a skin disorder, 120 had been exposed to the chemical C_1, 50 to chemical C_2, and 30 to both the chemicals C_1 and C_2. Find the number of individuals exposed to (1) chemical C_1 but not chemical C_2

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	(2) chemical C_2 but not chemical C_1 (3) chemical C_1 or chemical C_2 (4) exactly one of them (5) neither C_1 nor chemical C_2
8	(i)Find the value of cos 570° sin 510° + sin (-330°) cos (-390°). (ii) Find the value of the expression $\cos^4\pi/8 + \cos^4 3\pi/8 + \cos^4 5\pi/8 + \cos^4 7\pi/8$
9	Prove that SinA + SinB + SinC = $4\cos\frac{A}{2}\cos\frac{B}{2}\cos\frac{C}{2}$
10	(i)Solve cos2A + cos2B + cos2C = -1 – 4cosAcosBcosC (ii) Prove that $\sin^2 A + \sin^2 B + \sin^2 C = 2 + 2\cos A\cos B\cos C$.
11	Solve the equation |z| = z +1 + 2i.
12	If $Z = x + iy$ and $w = \frac{1-iz}{z-i}$, show that $\|w\| = 1 \Rightarrow$ z is purely real.
13	Show that a real value of x will satisfy the equation $\frac{1-ix}{1+ix} = a - ib$ if $a^2 + b^2 = 1$, where a and b are real.
14	Find the value of tan 9° - tan 27° - tan 63° + tan 81°
15	Prove that Cos α + Cos β + Cos γ + Cos (α + β + γ) $= 4\,\text{Cos}\left(\frac{\alpha+\beta}{2}\right).\text{Cos}\left(\frac{\beta+\gamma}{2}\right).\text{Cos}\left(\frac{\gamma+\alpha}{2}\right)$

PROJECT

Prepare a project based on the Fibonacci sequence, their properties and similar pattern found in nature

Project may be in the form of ppt/video/model