

INDIAN SCHOOL AL WADI AL KABIR

Class XII, Mathematics Worksheet 1- Relations

05-04-2022

Q.1.	For real numbers x and y define xRy if and only if x-y $+\sqrt{3}$ is an irrational number. Then the relation R is										
	A	reflexive	В	symmetric		С	transitive	D	none of these		
Q.2.	The relation R in R defined by $R = \{(a, b): a \le b^3\}$. Then R is										
	A	Reflexive but not symmetric	В	Symmetric but no symmetric	t	С	reflexive but not transitive	D	None of these		
Q.3.	Let R be the relation in the set $\{1, 2, 3, 4\}$ given by $R = \{(1, 2), (2, 2), (1, 1), (4, 4), (1, 3), (3, 3), (3, 2)\}$, then R is										
	A	Reflexive and symmetric but not transitive	В	Reflexive and transitive but not symmetric		С	Transitive and symmetric but not reflexive	D	an equivalence relation		
Q.4.	The number of all reflexive relations from set A = $\{1, 2, 3\}$ to itself is										
	Α	3	В	9		С	64	D	512		
Q.5.	Let $R = \{(1,3), (2,2), (3,2)\}$ is a relation defined on $A = \{1,2,3\}$, then minimum ordered pairs which should be added in relation R to make it reflexive and symmetric are										
	A {(1, 1), (2,3), (1, 2)}					{(3,	3, 3), (3,1), (1,2)}				
	C {(1, 1), (3, 3), (3, 1), (2, 3)}				D	{(1,	(1, 1), (3,3), (3, 1), (1,2}				
Q.6.	If R be the relation on set A = $\{1, 2, 3\}$ given by $R = \{(1, 2), (2, 1)\}$ then R is										
	A	only reflexive	В	an equivalence relation		С	only symmetric	D	only transitive		
Q .7.	Let A ={1, 2, 3} and consider the relation $R = \{(1, 2), (2, 2), (3, 3), (1, 2), (2, 3), (1, 3)\}$ then R is										
	A	reflexive but not transitive	В	symmetric and transitive	С	1	reflexive but not symmetric	[None of these		
Q.8.	If Relation R in the set Z of all integers defined as $R = \{(x, y): x - y \text{ is an integer }\}$ then R is										
	A	only a symmetric relation	В	Symmetric and transitive		С	Reflexive and transitive	D	an equivalence relation.		

If $R == \{(a, b): a = b\}$, then R is										
Α	only symmetric	В	Reflexive and symmetric	С	Symmetric and transitive	D	an equivalence relation			
If $R == \{(a, b): a \le b, a, b \text{ are real numbers}\}$, then R is										
Α	reflexive and symmetric	В	reflexive and transitive	С	Symmetric and transitive	D	none of these			
Let $A = \{1,2,3,4,5,6,7\}$ and R be a relation in $A \times A$ is defined by $a + d = b + c$ for all $(a, b), (c, d) \in A \times A$. Prove that R is an equivalence relation. Hence obtain the equivalence class of $(2, 5)$.										
Let T be the set of all triangles in a plane with R a relation in T given by $R = \{(T1, T2): T1 \text{ is isimiar to } T2\}$. Show that R is an equivalence relation.										
Let L be the set of all lines in a plane and R be the relation in L defined as $R = \{(L1, L2): L1 \perp L2\}$. Show that R is symmetric but neither reflexive nor transitive.										
Let the relation R be defined on the set A = {1, 2, 3, 4, 5} by R = {(a, b): $ a^2 - b^2 < 8$. Write the relation R. Also verify whether the relation is reflexive, symmetric and transitive										
Prove that the relation R on the set NXN defined by (a, b) R (c, d), iff ad = bc, for all (a, b), (c, d) \in NXN is an equivalence relation.										
Show that the relation R defined on set A = $\{0, 1, 2, 3, \dots, 12\}$ R = $\{(a, b): a - b is divisible by 4; a, b \in A\}$ is an equivalence relation										
1.	А	2.	D	3.	В	4.	D			
5.	С	6.	С	7.	В	8.	D			
9.	D	10	В	11	[(2,5)] = {(1,4), (2,5), (3,6)), (4,	7), (5,8), (6,9)}			
	A If R A Let for class Let R = Let Sho Let R = syr Pro is a Sho R = 1. 5.	Aonly symmetricIf $R == \{(a, b): a \leq b, a, b an symmetricAreflexive and symmetricLet A = \{1,2,3,4,5,6,7\} and Bfor all (a, b), (c, d) \in A \times Aclass of (2, 5).Let T be the set of all triangleR = \{(T1, T2): T1 \text{ is isimic}Let L be the set of all lines in Show that R is symmetric beLet the relation R be defferedR = \{(a, b): a^2 - b^2 < 8.5Symmetric and transitiveProve that the relation R on is an equivalence relation.Show that the relation R definesR = \{(a, b): a - b \text{ is divises}1.A5.C$	Aonly symmetricBIf $R == \{(a, b): a \leq b, a, b \text{ are reference} and symmetricBAreflexive and symmetricBLet A = \{1, 2, 3, 4, 5, 6, 7\} and R befor all (a, b), (c, d) \in A \times A. Preclass of (2, 5).BLet T be the set of all triangles in R = \{(T1, T2): T1 is isimiar to the set of all lines in a point of the set of all line$	Aonly symmetricBReflexive and symmetricIf $R == \{(a, b): a \le b, a, b \ are \ real \ numbers \}, then b$ Areflexive and symmetricBreflexive and transitiveAreflexive and symmetricBreflexive and transitiveLet $A = \{1, 2, 3, 4, 5, 6, 7\}$ and R be a relation in $A \times A$ is for all $(a, b), (c, d) \in A \times A$. Prove that R is an equiv- class of $(2, 5)$.Let T be the set of all triangles in a plane with R a rela R = $\{(T1, T2): T1 \ is \ isimiar \ to \ T2\}$. Show that R is symmetric but neither reflexive nor tra Let the relation R be defined on the set A = $\{1,$ R = $\{(a, b): a^2 - b^2 < 8$. Write the relation R. A symmetric and transitiveProve that the relation R on the set NXN defined by (a is an equivalence relation.Show that the relation R defined on set A = $\{0, 1, 2, 3\}$, R = $\{(a, b): a - b is \ diivisible \ by \ 4; a, b \in A\}$ is an1.A2.D5.C6.	Aonly symmetricBReflexive and symmetricCIf $R == \{(a, b): a \le b, a, b \text{ are } real numbers\}, then R is$ Areflexive and symmetricBreflexive and symmetricBreflexive and transitiveCLet $A = \{1,2,3,4,5,6,7\}$ and R be a relation in $A \times A$ is def for all $(a, b), (c, d) \in A \times A$. Prove that R is an equivalence class of $(2, 5)$.Let T be the set of all triangles in a plane with R a relation in R = $\{(T1, T2): T1 \text{ is isimiar to } T2\}$. Show that R is an equivalence class of the relation R be defined on the set A = $\{1, 2, 3, 3, 3, 6, 7\}$ Let L be the set of all lines in a plane and R be the relation Show that R is symmetric but neither reflexive nor transitiveLet L be the set of all lines in a plane and R be the relation Show that R is symmetric but neither reflexive nor transitiveProve that the relation R be defined on the set A = $\{1, 2, 3, 3, R = \{(a, b): a^2 - b^2 < 8$. Write the relation R. Also v symmetric and transitiveProve that the relation R defined on set A = $\{0, 1, 2, 3,, 12, R = \{(a, b): a - b is diivisible by 4; a, b \in A\}$ is an equivalence relation.1.A2.D3.5.C6.C7.	Aonly symmetricBReflexive and symmetricCSymmetric and transitiveIf $R == \{(a, b): a \le b, a, b \text{ are } real numbers\}, then R is$ If $R == \{(a, b): a \le b, a, b \text{ are } real numbers\}, then R is$ CSymmetric and transitiveAreflexive and symmetricBreflexive and transitiveCSymmetric and transitiveLet $A = \{1, 2, 3, 4, 5, 6, 7\}$ and R be a relation in $A \times A$ is defined by $a + d = b + f$ or all $(a, b), (c, d) \in A \times A$. Prove that R is an equivalence relation. Hence o class of $(2, 5)$.Let T be the set of all triangles in a plane with R a relation in T given by R = { $(T1, T2): T1$ is isimiar to $T2$ }. Show that R is an equivalence relation.Let L be the set of all lines in a plane and R be the relation in L defined as $R = 5$ Show that R is symmetric but neither reflexive nor transitive.Let the relation R be defined on the set $A = \{1, 2, 3, 4, 5\}$ by R = { $(a, b): a^2 - b^2 < 8$. Write the relation R. Also verify whether the symmetric and transitiveProve that the relation R on the set NXN defined by $(a, b) R$ (c, d) , iff ad = bc, for is an equivalence relation.Show that the relation R defined on set $A = \{0, 1, 2, 3,, 12\}$ R = { $(a, b): a - b $ is divisible by 4; $a, b \in A$ } is an equivalence relation1.A2.D3.9.D10B11	Aonly symmetricBReflexive and symmetricCSymmetric and transitiveDIf R == {(a, b): $a \le b, a, b$ are real numbers}, then R isAreflexive and symmetricBreflexive and transitiveCSymmetric and transitiveDLet A = {1,2,3,4,5,6,7} and R be a relation in A × A is defined by $a + d = b + c$ for all $(a, b), (c, d) \in A × A$. Prove that R is an equivalence relation. Hence obtain class of $(2, 5)$.Let T be the set of all triangles in a plane with R a relation in T given by R = { $(T1, T2)$: T1 is isimiar to T2}. Show that R is an equivalence relation.Let t be the set of all lines in a plane and R be the relation in L defined as R = { $(L1$ Show that R is symmetric but neither reflexive nor transitive.Let the relation R be defined on the set A = { $1, 2, 3, 4, 5$ } by R = { (a, b) : $ a^2 - b^2 < 8$. Write the relation R. Also verify whether the relation symmetric and transitiveProve that the relation R on the set NXN defined by $(a, b) R (c, d)$, iff $ad = bc$, for all is an equivalence relation.Show that the relation R defined on set A = { $0, 1, 2, 3,, 12$ } R = { $(a, b): a - b is diivisible by 4; a, b \in A$ } is an equivalence relation1.A2.D3.B4.5.C6.7.88.9.D10B11			