MATHS

BOOKS - RD SHARMA MATHS (ENGLISH)

RELATIONS

Others

1. Let R be the relation on Z defined by $R = \{(a, b) : a, b$ belongs to Z , $a - b$ is an integer$\}$. Find the domain and range of R.

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2. If $A = \{1, 2, 4\}, B = \{2, 4, 5\}, C = \{2, 5\}, then (A - B) \times (B - C)$ is (a)$\{(1, 2), (1, 5), (2, 5)\}$ (b) $\{(1, 4)\}$ (c) $(1, 4)$ (d) none of these.

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3. If $A \, and \, B$ are two sets having 3 elements in common. If $n(A) = 5, n(B) = 4$, find $n(A \times B) \, and \, n[(A \times B) \cap (B \times A)]$.

4. If $A = \{1, 3, 5\}, B = \{x, y\}$ represent the following products: $A \times B$

5. If $A = \{-1, 2\}$, find $A \times A$

6. Let $A \, and \, B$ be two sets. Show that the sets $A \times B \, and \, B \times A$ have an element in common iff the sets $A \, and \, B$ have an element in common.

7. If $A = \{1, 5\}$, $B = \{3\}$, find $A \times B$

8. For any three sets A, B, C prove that:

$A \times (B' \cup C')' = (A \times B) \cap (A \times C)$ and

$A \times (B' \cap C')' = (A \times B) \cup (A \times C)$

9. If $A \subseteq B$, show that $A \times A \subseteq (A \times B) \cap (B \times A)$.

10. If A and B are any two non-empty sets, then prove that:

$A \times B = B \times A' \Rightarrow A = B$.

11. If $A \subseteq B$, and $C \subseteq D$, prove that $A \times C \subseteq B \times D$.

12. If $A \subseteq B$, prove that $A \times C \subseteq B \times C$ for any set C.

13. If R is a relation on the set $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$ given by $xRy \Leftrightarrow y = 3x$, then $R = $ (a) $\{(3, 1), (6, 2), (8, 2), (9, 3)\}$ (b) $\{(3, 1), (6, 2), (9, 3)\}$ (c) $\{(3, 1), (2, 6), (3, 9)\}$ (d) none of these.

14. If $A = \{1, 2, 3\}, B = \{4, 5, 6\}$, which of the following are relations from $A \to B$? Give reasons in support of your answer.

$\{(1, 6), (3, 4), (5, 2)\}$ (ii) $\{(1, 5), (2, 6), (3, 4), (3, 6)\}$ (iii)

$\{(4, 2), (4, 3), (5, 1)\}$ (iv) $A \times B.$

15. $A = \{1, 2, 3. 5\}$ *and* $B = \{4, 6, 9\}$.

Define a relation R from A to B by R = {(x, y): the difference between x and

y is odd: $x \in A, \quad y \in B$ }. Write R in roster form.

16. Let R be the relation on the Z of all integers defined by

$(x, y) \in Rx - y$ is divisible by n . Prove that: $(x, x) \in R$ for all $x \in Z$

$(x, y) \in R(y, x) \in R$ for   all $x, y \in Z$

$(x, y) \in Rand(y, z) \in R(x, z) \in R$ for all $x, y, z \in R$

17. A relation R is defined from $\{2, 3, 4, 5\}$ to$\{3, 6, 7, 10\}$by $: xRy: x$ is relatively prime to y. Then, domain of R is (a)$\{2, 3, 5\}$ (b) $\{3, 5\}$ (c) $\{2, 3, 4\}$ (d) $\{2, 3, 4, 5\}$.

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18. Let R be a relation in N defined by $(x, y) \in Rx + 2y = 8$. Express R $and\ R^{-1}$ as sets of ordered pairs.

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19. The Cartesian product $A \times A$ has 9 elements among which are found $(-1, \quad 0) \quad and \quad (0, \quad 1)$. Find the set A and the remaining elements of $A \times A$.

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20. Let $A = \{-1, 3, 5\}$ and $B = \{2, 3\}$ find $A \times B$

21. Express $A = \{(a, b) : 2a + b = 5, a, b \in W\}$ as the set ordered pairs.

22. If $A \times B = \{(a, 1)(b, 3), (a, 3), (b, 1), (a, 2), (b, 2)\}$, find A and B.

23. Let $A = \{1, 2, 3\}$ and $B = \{x : x \in N, x$ is prime less than 5$\}$. Find $A \times B$

24. If $A \times B = \{(a, 1)(a, 5), (a, 2), (b, 2), (b, 5), (b, 1)\}$, find $B \times A$.

25. If $A = \{1, 2\}$, $B = \{3, 4\}$ find $A \times B$

26. Find x and y, if $(x + 3, 5) = (6, 2x + y)$.

27. If $A = \{a, b\}$ and $B = \{1, 2, 3\}$, find $A \times B$, $B \times A$

28. If $A = \{1, 2, 3\}, B = \{4\}, C = \{5\},$ then verify that:

$$A \times (B \cup C) = (A \times B) \cup (A \times C)$$

29. If $A = \{a, b\}$ and $B = \{3\},$ find $A \times B$

30. If $A \times B \subseteq C \times D$ and $A \times B \neq \varphi,$ prove that $A \subseteq C$ and $B \subseteq D$.

31. Express $A = \{(a, b) : a + b = 4, a, b \in W\}$ as the set ordered pairs.

32. For any sets A, B, C, D prove that:

$(A \times B) \cap (C \times D) = (A \cap C) \times (B \cap D)$

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33. For any three sets A, B, C prove that:

$A \times (B' \cup C')' = (A \times B) \cap (A \times C)$

$A \times (B' \cap C')' = (A \times B) \cup (A \times C)$

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34. A and B are two non empty set having n element in common ; then prove that $A \times B$ and $B \times A$ have n^2 element in common.

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35. Let A be a non-empty set such that $A \times B = A \times C$. Show that $B = C$.

36. Let R be the relation on the set N of natural numbers defined by $R = \{(a, b) : a + 3b = 12, a \in N, b \in N\}$. Find : (i) R (ii) $Doma \in of$R

(iii)Rangeof$R$

37. If $A = \{a, b\}$ and $B = \{-4, 6\}$, find $A \times B$

38. A relation R is defined on the set Z of integers as: $(x, y) \in Rx^2 + y^2 = 25$. Express $RandR^{-1}$ as the sets of ordered pairs

and hence find their respective domains.

39. For the relation R_1 defined on R by the rule $(a, b) \in R_1 : 1 + ab > 0.$ Prove that: for $(a, b) \in R_1 and (b, c) \in R_1 then (a, c) \in R_1$ is not true for all $a, b, c \in R$

40. The position of a point in a two dimensional plane in Cartesian coordinates is represented by an ordered pair. Accordingly the ordered pairs (1,3), (2,4), (2,3) and (3,2) represents different points in a plane.

41. Find the values of $a \ and \ b,$ if $(3a - 2, \ b + 3) = (2a - 1, \ 3).$

42. If $A = \{1, 3, 5, 6\}$ and $B = \{2, 4\}$, $f \in dA \times B$ and $B \times A$.

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43. If $A = \{1, 2, 3\}$, $B = \{3, 4\}$ and $C = \{1, 3, 5\}$, find $A \times (B \cup C)$

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44. If $A = \{1, 2, 3\}$, $B = \{3, 4\}$ and $C = \{1, 3, 5\}$, find $A \times (B \cap C)$

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45. If $A = \{1, 2, 3\}$, $B = \{3, 4\}$ and $C = \{1, 3, 5\}$, find $(A \times B) \cap (A \times C)$

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46. If $A = \{1, 2\}$, from the set $A \times A \times A$

47. If R is the set of all real numbers, what do the cartesian products $R \times R$and $R \times R \times R$represent?

48. Let A and B be two sets such that $A \times B$ consists of 6 elements. If three elements of $A \times B$ are: $(1, 4)$, $(2, 6)$, $(3, 6)$. Find other elements of $A \times B \, and \, B \times A.$

49. Let A and B be two sets such that $n(A) = 5 \, and \, n(B) = 2$, if a, b, c, d, e are distinct and $(a, 2)$, $(b, 3)$, $(c, 2)$, $(d, 3)$, $(e, 2)$ are in $A \times B$, find A and B.

50. If $\left(\dfrac{a}{3} - 1, \ b - \dfrac{2}{3} \right) = \left(\dfrac{5}{3}, \dfrac{1}{3} \right)$, find the values of $a \ and \ b.$

51. If the ordered pairs $(x, \ - 1)$ and $(5, y)$ belong to the set

$\{(a, b) : b = 2a - 3\}$, find the values of $x \ and \ y.$

52. If $(x + 1, \ 1) = (3, \ y - 2)$, find the value of x and $y.$

53. If $a \in \{2, 4, 6, 9\} and \ b \in \{4, 6, 18, 27\}$, then from the set of al

ordered pairs (a, b) such that a divides `b and a

54. if $A = \{1, 2\}$ **and** $B = \{1, 3\}$**, find** $A \times B$ and $B \times A.$

55. If $A = \{1, 2, 3\} and B = \{3, 4\}.$ **Find** $A \times B$ **and show it graphically.**

56. **If** $A = \{1, 2, 3\} and B = \{2, 4\},$ **what** **are**

$A \times B, \ B \times A, \ A \times A, \ B \times B, \ and \ (A \times B) \cap (B \times A)?$

57. **Let** **A** **and** **B** **be** **two** **sets** **such** **that**

$n(A) = 3 \ and \ n(B) = 2.$ if $(x, 1), \ (y, 2), \ (z, 1) are \in A \times B,$

find $A \ and \ B, \ where \ x, y, z$ are distinct elements.

58. Let $A = \{1, 2, 3, 4\}$ and $R = \{(a, b) : a \in A, b \in A, a$ **divides** $b\}$.

Write R **explicity.**

59. State whether each of the following statements are true or false. If the statement is false re-write the given statement correctly: (i) **If** $p = \{m, n\} and \ Q = \{n, m\}, \ then \ P \times Q = \{(m, n), \ (n, m)\}$ (ii) **If A and B are non empty sets then** $A \times B$ **is a non empty set of ordered pairs** (x, y) **such that** $x \in B \ and \ y \in A.$ (iii)**If** $A = \{1, 2\}, \ B = \{3, 4\}, \ then \ A \times (B \cap \varphi) = \varphi.$

60. If $A = \{1, 2\}$, **form the set** $A \times A \times A$.

61. If $A = \{1, 2, 4\} and \ B = \{1, 2, 3\}$, **represent following sets graphically-** $A \times B$

62. If $A = \{1, 2, 4\} and \ B = \{1, 2, 3\}$, **represent following sets graphically-** $B \times A$

63. If $A = \{1, 2, 4\} and \ B = \{1, 2, 3\}$, **represent following sets graphically-** $A \times A$

64. If $A = \{1, 2, 4\}$ and $B = \{1, 2, 3\}$, represent following sets graphically- $B \times B$

65. If $A = \{2, 3\}, \ B = \{4, 5\}, \ C = \{5, 6\}$, find $A \times (B \cup C), \ A \times (B \cap C), \ (A \times B) \cup (A \times C).$

66. Let $A = \{1, 2\}, \ B = \{1, 2, 3, 4\}, \ C = \{5, 6\}$ and $D = \{5, 6, 7, 8\}$.

Verity that: $A \times C \subset B \times D$

67. Let $A = \{1, 2\}, \ B = \{1, 2, 3, 4\}, \ C = \{5, 6\} and \ D = \{5, 6, 7, 8\}$.

Verity that: $A \times (B \cap C) = (A \times B) \cap (A \times C)$

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68. If $A = \{1, 2, 3\}, \ B = \{1, 2, 3, 4\}, \ C = \{4, 5, 6\},$ **find** $: A \times (B \cap C)$

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69.   **If**

$A = \{1, 2, 3\}, \ B = \{1, 2, 3, 4\}, \ C = \{4, 5, 6\}, \ f \in d : (A \times B) \cap (A \times C)$

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70.   **If**

$A = \{1, 2, 3\}, \ B = \{1, 2, 3, 4\}, \ C = \{4, 5, 6\}, \ find : A \times (B \cap C)$

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71. **If**

$A = \{1, 2, 3\},\ B = \{1, 2, 3, 4\},\ C = \{4, 5, 6\},\ f \in d : (A \times B) \cap (A \times C)$

72. Let $A = \{1, 2, 3\},\ B = \{a, b, c, d\}$ be two sets and let

$R = \{(1, a),\ (1, c),\ (2, d), (2, c)\}$ be a relation from A to B. Then

$R^{-1} = \{(a, 1),\ (c, 1),\ (d, 2),\ (c, 2)\}$ is a relation from B to A.

73. If $A = \{a, b,\ c, d\},\ B = \{p, q, r, s\}$ than is the following relation

from $A \rightarrow B$? Give reasons for your answer.:

$R_1 = \{(a, p),\ (b, r),\ (c, s)\}$

74. If $A = \{a, b, c, d\}$, $B = \{p, q, r, s\}$ than Is the following relation from $A \to B$? Give reasons for your answer.:

$R_2 = \{(q, b), (c, s), (d, r)\}$

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75. If $A = \{a, b, c, d\}$, $B = \{p, q, r, s\}$ than Is the following relation from $A \to B$? Give reasons for your answer.:

$R_3 = \{(a, p), (a, q), (d, p), (c, r), (b, r)\}$

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76. If $A = \{a, b, c, d\}$, $B = \{p, q, r, s\}$ than is the following relation from $A \to B$? Give reasons for your answer.:

$R_4 = \{(a, p), (q, a), (b, s), (s, b)\}$

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77. If $A = \{1, 3, 5, 7\}$, $B = \{2, 4, 6, 8, 10\}$ and let $R = \{(1, 8), (3, 6), (5, 2), (1, 4)\}$ be a relation form A to B. Then, find $Dom(R)$ and $Ran(R)$

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78. If R is a relation from set $A = \{2, 4, 5\}$ to set $B = \{1, 2, 3, 4, 6, 8\}$ defined by $x\,Ry \Leftrightarrow x$ divides y. Write R as a set of ordered pairs Find the domain and the range of R.

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79. Let $A = \{1, 2, 3\}$, $B = \{a, b, c, d\}$ be two sets and let $R = \{(1, a), (1, c), (2, d), (2, c)\}$ be a relation from A to B. Then $R^{-1} = \{(a, 1), (c, 1), (d, 2), (c, 2)\}$ is a relation from B to A.

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80. If $A = \{1, 2, 3\}$, $B = \{4, 5, 6\}$ Is the following ralation from $A \to B$? Give reason in support of your answer:

$R_1 = \{(1, 4), (1, 5), (1, 6)\}$

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81. If $A = \{1, 2, 3\}$, $B = \{4, 5, 6\}$ Is the following relation from $A \to B$? Give reason in support of your answer:

$R_2 = \{(1, 5), (2, 4), (3, 6)\}$

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82. If $A = \{1, 2, 3\}$, $B = \{4, 5, 6\}$ Is the following relatios from $A \to B$? Give reason in support of your answer:

$R_3 = \{(1, 4), (1, 5), (3, 6), (2, 6), (3, 4)\}$

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83. If $A = \{1, 2, 3\}$, $B = \{4, 5, 6\}$ then, Is the following relation from $A \to B$? Give reason in support of your answer:

$R_4 = \{(4, 2), \ (2, 6), \ (5, 1), (2, 4)\}$

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84. Let $A = \{1, 2, 3, 4, 5, 6\}$. Define a relation R on set A by $R = \{(x, y) : y = x + 1\}$ Depict this relation using an arrow diagram Write down the domain, co domain and range of R.

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85. Figure 2.14 shows a relation R between the sets $P \ and \ Q$. Write this relation R in i. Roster form ii. Set builder form. What is it's domain and range?

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86. Let R be a relation in N defined by $R = \{(a, b); a, b \in N \text{ and } a = b^2.\}$ Are the following true:
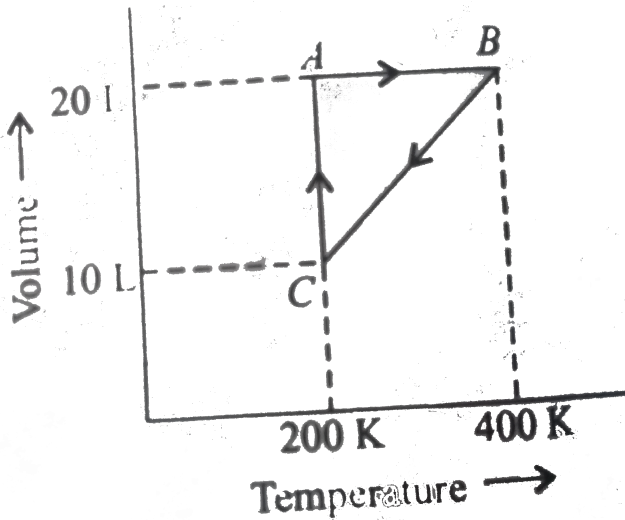
(i) $(a, a) \in R \ \forall \ a \in N$ (ii) $(a, b) \in R \Rightarrow (b, a) \in R$

(iii) $(a, b) \in R, (b, c) \in R \Rightarrow (a, c) \in R$

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87.

The pressures at A and B in the atmosphere are, respectively,

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88. A relation R is defined from a set $A = \{2, 3, 4, 5\} \rightarrow$ $a\ set\ B = \{3, 6, 7, 10\}$ as follows: $(x, y) \in R \Leftrightarrow x$ is relatively prime to y. Express R as a set of ordered pairs and determine its domain and range.

89. Let A be the set of first five natural numbers and let R be a relation on A defined as follows $(x, y) \in R \Leftrightarrow x \le y$. Express $R\ and\ R^{-1}$ as sets of ordered pairs. Determine also The domain of R^{-1} The range of R.

90. Find the inverse relation R^{-1} in the following case: $R: \{(1, 2), (1, 3), (2, 3), (3, 2), (5, 6)\}$

91. Find the inverse relation R^{-1} in the following case:

$R: \{(x, y) : x, y \in N, \ x + 2y = 8\}$

92. If R is a relation on a finite set having n elements, then the number of relations on A is a. 2^n b. $2^{n \ \hat{} \ 2}$ c. n^2 d. n^n

93. Find the inverse relation R^{-1} in the following case: R is a relation from $\{11, 12, 13\} \rightarrow \{8, 10, 12\}$ defined by $y = x - 3$.

94. Write the following relation as the sets of ordered pair: A relation R from the set $\{2, 3, 4, 5, 6\}$ to the set $\{1, 2, 3\}$ defined by $x = 2y$.

95. Write the following relation as the set of ordered pair: A relation R on the set $\{1, 2, 3, 4, 5, 6, 7\}$ defined by $(x, y) \in R \Leftrightarrow x$ is relatively prime to y.

96. Write the following relation as the set of ordered pair: A relation R on the set $\{0, 1, 2, \ldots 10\}$ defined by $2x + 3y = 12$.

97. Write the following relation as the set of ordered pair: A relation R from a set $A = \{5, 6, 7, 8\}$ to the set $B = \{10, 12, 15, 16, 18\}$ defined by $(x, y) \in R \Leftrightarrow x$ divides y.

98. **Let** $A = \{3, 5\} and\ B = \{7, 11\}.$ **Let** $R = \{(a, b) : a \in A,\ b \in b,\ a - b$ **is odd**$\}$. **Show that** R **is an empty relation from A and B.**

99. Let $A = \{1, 2] and\ B = \{3, 4\}$. **Find the total number of relations from A into B.**

100. Determine the domain and range of the relation R **defined by:** $R = \{(x, x + 5) : x \in \{0, 1, 2, 3, 4, 5\}$

101. Determine the domain and range of the relation R **defined by:** $R = \{(a, b) : b = |a - 1|,\ a \in Z\ and\ |a| \le 3\}$

102. Let $A = \{a, b\}$ **. List all relations on A and find their number.**

103. Let $A = \{x, y, z\} nd\ B = \{a, b\}$ **. Find the total number of relations from A into B.**

104. Let R be a relation from N to N defined by $R = \{(a, b) : a\dot{b} \in N$ and $a = b^2)$. **Are the following true?(i)** $(a, a) \in R,\ \forall a \in N$**(ii)** $(a, b) \in R, implies(b, a) \in R$**(iii)** $(a, b) \in R,$ **(b , c)** $\in$ R implies (a , c) $\in$ R .

105. Let $A = \{1, 2, 3, ..., 14\}$. **Define a relation on a set A by** $R = \{(x, y) : 3x - y = 0. \; where \; x, y \in A\}$. **Depict this relationship using an arrow diagram. Write down its domain, co-domain and range.**

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106. Define a relation R **on the set** N **of natural numbers by** $R = \{(x, y) : y = x + 5, \; x$ **is a natural number less than** $4, \; x, y \in N\}$. **Depict this relationship using i. roster form ii. an arrow diagram. Write down the domain and range or** $R.$

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107. Let $A = \{1, 2, 3, 5\} B = \{2, 4, 9\}$ **.Define a relation. from A to B by** $R = \{(x, y) :$ **the difference between** x **and** y **is odd,** $x \in A, y \in B\}$. **Write it in Roster from**

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108. Write the relation $R = \{(x, x^3) : x$ is a prime number less than 10$\}$ in roster form.

109. Let $A = \{1, 2, 3, 4, 5, 6\}$. Let R be a relation on A defined by $R = \{(a, b) : a, b \in A, b$ is exactly divisible by a$\}$ Write R is roster form Find the domain of R Find the range of R.

110. Figure 2.15 shows a relationship between the sets $P \, and \, Q$. Write this relation in Set builder form ii. Roster form What is its domain and range?

111. Let R be the relation on Z defined by $R = \{(a, b) : a, b \in Z, a - b$ is an integer$\}$. Find the domain and range of R.

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112. Let R be a relation on $N \times N$ defined by $(a, b)\,R(c, d) \Leftrightarrow a + d = b + c$ if $(a, b), (c, d) \in N \times N$ then show that: $(i)\ (a, b)R\,(a, b)\ f$ or $all\ (a, b) \in N \times N$ $(ii)\ (a, b)R(c, d) \Rightarrow (c, d)R(a, b)f$ or $all\ (a, b),\ (c, d) \in N \times N$ $(iii)\ (a, b)R\ (c, d)and\ (c, d)R(e, f) \Rightarrow (a, b)R(e, f)$ for all $(a, b),\ (c, d),\ (e, f) \in N \times N$

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113. If $A = \{1, 2, 4\},\ B = \{2, 4, 5\}and\ C = \{2, 5\}$, write $(A - B) \times (B - C)$.

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114. If $n(A) = 3, n(B) = 4,$ then write $n(A \times A \times B)$.

115. If R is a relation defined on the set Z of integers by the rule $(x, y) \in R \Leftrightarrow x^2 + y^2 = 9,$ then write domain of R.

116. If $R = \{(x, y): x^2 + y^2 \leq 4; x, y \in Z\}$ is a relation on Z , write the domain of R .

117. If R is a relation from set $A = \{11, 12, 13\}$ to set $B = \{8, 10, 12\}$ defined by $y = x - 3,$ then write R^{-1}.

A. $\{(8, 11), (10, 13)\}$

B. $\{(8, 11), (10, 12)\}$

C. $\{(10, 13), (10, 11)\}$

D. none of these

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118. Let

$R = \{(x, y): x, y \in Z, \; y = 2x - 4\} If \; (a, \; -2) \; and \; (4, b^2) \in R, \;$ then write the values of a and b.

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119. If $R = \{(2, 1), (4, 7), (1, \; -2)...\}$, **then writhe the linear relation between the components of the ordered pairs of the relation** R.

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120.   If $A = \{1, 3, 5\}$ and $B = \{2, 4\}$ list   the   elements   of R,   if $R = \{(x, y) : x, y \in A \times B \text{ and } x > y\}$.

121. If $R = \{(x, y) : x, y \in W, 2x + y = 8\}$., then write the domain and range of R.

122. Let $A \text{ and } B$ be two sets such that $n(A) = 3 \text{ and } n(B) = 2$. If $(x, 1), (y, 2), (z, 1)$ are in $A \times B$, write $A \text{ and } B$.

123. Let $A = \{1, 2, 3\}$, $B = \{1, 3, 5\}$. If relation R from A to B is given by $R = \{(1, 3), (2, 5), (3, 3)\}$. Then R^{-1} is

A. $\{(3, 3), (3, 1), (5, 2)\}$

B. $\{(1, 3), (2, 5), (3, 3)\}$

C. $\{(1, 3), (5, 2)\}$

D. none of these

Answer: A

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124. If $A = \{1, 2, 3\}, \ B = \{1, 4, 6, 9]and \ R$ is a relation from A to B defined by x is greater than y. The range of R is

A.$\{1, 4, 6, 9\}$

B. $\{4, 6, 9\}$

C. $\{1\}$

D. none of these

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125. If $R = \{(x, y) : x, y \in Z, x^2 + y^2 \leq 4\}$ is a relation on Z, then domain of R is $\{0, 1, 2\}$ **b.** $\{0, -1, -2\}$ **c.** $\{-2, -1, 0, 1, 2\}$ **d. none of these**

126. A relation φ from $C \to R$ is defined by $x\varphi y \Leftrightarrow |x| = y$. Which one is correct? **a.** $(2 + 3i)\varphi 13$ **b.** $3\varphi(-3)$ **c.** $(1 + i)\varphi 2$ **d.** $i\varphi 1$

127. Let R be a relation on N defined by $x + 2y = 8$. The domain of R is **(a)** $\{2, 4, 8\}$ **b.** $\{2, 4, 6, 8\}$ **c.** $\{2, 4, 6\}$ **d.** $(1, 2, 3, 4)$

128. R is a relation from {11,12,13} to {8,10,12} defined by $y = x - 3$ Then R^{-1} is

129. Let R be a relation from a set A to a set B, then

A. A. $R = A \cup B$

B. B. $R = A \cap B$

C. C. $R \subseteq A \times B$

D. D. $R \subseteq B \times A$

Answer: C

130. If R is a relation from a finite set A having m elements to a finite set B having n elements then the number of relations from A to B is

A. A. 2^{mn}

B. B. $2^{mn} - 1$

C. C. n^m

D. D. m^n

Answer: A

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