RAVI MATHS TUITION CENTER, GKM COLONY, CH- 82. PH : 8 0 5 6 2 0 6 3 0 8

11TH MATHS SETS, RELATION, FUNCTION TEST 1

Date : 11-Jun-19

11th Standard

Maths

Reg.No. : | | | | | | |

Time : 01:00:00 Hrs

Total Marks : 40

5 x 2 = 10

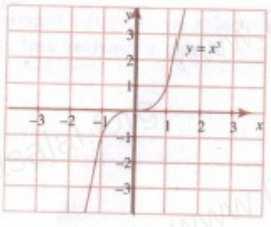
1) Write the following in roster form.
$\left\{x : \frac{x-4}{x+2} = 3, x \in R - \{-2\}\right\}$
2) For a set A, A$\times$ A contains 16 elements and two of its elements are (1,3) and (0,2). Find the elements of A.
3) Let A = {a, b, c}, and R = {(a, a) (b, b) (a, c)}. Write down the minimum number of ordered pairs to be included to R to make it **Symmetric**
4) On the set of natural number let R be the relation defined by aRb if 2a + 3b = 30. Write down the relation by listing all the pairs. Check whether it is reflexive
5) State whether the following relations are functions or not. If it is a function check for one-to-oneness and ontoness. If it is not a function state why?
If A={a,b,c} and f={(a, c) (b, c) (c, b)} : (f : A $\rightarrow$ A).

5 x 3 = 15

6) A salesperson whose annual earnings can be represented by the function A(x)=30,000 + 0.04x, where x is the rupee value of the merchandise he sells.His son also in sales and his earnings are represented by the function S(x)=25,000 + 0.05x.Find (A+S) (x) and determine the total family income if they each sell Rs.1,50,00,000 worth of merchandise.
7) Graph the function f(x)=x^3 and $g(x)\sqrt[3]{x}$ on the same co-ordinate plane. Find fog and graph it on the plane as well. Explain your results.
8) By taking suitable sets A, B, C, verify the following results:
A $\times$ (B$\cap$ C)=(A$\times$ B) $\cap$ (A$\times$ C)
9) If n (p(A)) = 1024, n(A$\cup$ B)=15 and n(p(B))=32, then find n(A$\cap$ B).
10) If n(A$\cap$ B)=3 and n(A$\cup$ B) = 10 then find n(P(AΔ B))

3 x 5 = 15

11) The formula for converting from Fahrenheit to Celsius temperatures is $y = \frac{5x}{9} - \frac{160}{9}$. Find the inverses of this function and determine whether the inverse is also a function?
12) A simple cipher takes a number and codes it, using the function f(x)=3x-4. Find the inverse of this function, determine whether the inverse is also a function and verify the symmetrical property about the line y=x(by drawing the lines)
13) For the given curve y=x^3 given in figure draw, try to draw with the same scale
(i) y=-x^3
(ii) y= x^3+1
(iii) y=x^3-1
(iv) y=(x+1)^3



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SETS TEST 2

11th Standard

Maths

Date : 11-Jun-19

Reg.No. : | | | | | | |

Time : 01:00:00 Hrs

Total Marks : 40

5 x 2 = 10

1) Let A={1,2,3,4} and B = {a,b,c,d}. Give a function from A $\rightarrow$ B for each of the following: neither one- to -one and nor onto.

2) Show that the relation xy=-2 is a function for a suitable domain. Find the domain and the range of the function.

3) Find the number of subsets of A if A = $\{x : x = 4n + 1, 2 \leq n \leq 5, n \in N\}$.

4) Prove that $((A \cup B' \cup C) \cap (A \cap B' \cap C') \cup (A \cup B \cup C') \cap (B' \cap C')) = B' \cap C'$.

5) If X = {1, 2, 3, .. 10} and A = {1, 2, 3, 4, 5}, find the number of sets $B \subseteq X$ such that A - B = {4}.

5 x 3 = 15

6) If A $\times$ A has 16 elements, S={(a,b) $\in$ A $\times$ A:a< b};a< b};(-1, 2) and (0, 1) are two elements of S, then find the remaining elements of S.

7) In the set Z of integers, define mRn if m - n is divisible by 7. Prove that R is an equivalence relation.

8) Find the domain of $\frac{1}{1-2sinx}$

9) Find the largest possible domain of the real valued function f(x)=$\frac{\sqrt{4-x^2}}{\sqrt{x^2-9}}$

10) Find the range of the function $\frac{1}{2cosx-1}$

3 x 5 = 15

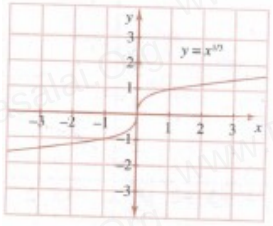
11) For the given curve, $y = x^{\frac{1}{3}}$ given in figure draw

(i) $y = -x\left(\frac{1}{3}\right)$

(ii) $y = x\left(\frac{1}{3}\right) + 1$

(iii) $y = x\left(\frac{1}{3}\right) - 1$

(iii) $y = (x+1)^{\frac{1}{3}}$



12) From the curve y=sin x, graph the functions.

(i) y=sin(-x)

(ii) y=-sin(-x)

(iii) $y = sin\left(\frac{\pi}{2} + x\right)$

(iv) $y = sin\left(\frac{\pi}{2} - x\right)$

13) From the curve y=x, draw

(i) y=- x

(ii) y=2x

(iii) y=x+1

(iv) $y = \frac{1}{2}x + 1$

(v) 2x+y+3=0

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SETS TEST 3

11th Standard

Maths

Date : 11-Jun-19

Reg.No. : | | | | | | |

Time : 01:00:00 Hrs

Total Marks : 40

5 x 2 = 10

1) Find the number of subsets of A if A = $\{x : x = 4n + 1, 2 \leq n \leq 5, n \in N\}$.
2) If A and B are two sets so that n(B - A) = 2n(A - B) = $4n(A \cap B)$ and if $n(A \cup B) = 14$, then find n(P (A)).
3) If n(A) = 10 and $n(A \cap B) = 3$, find $n((A \cap B') \cap A)$.
4) If A = {1, 2, 3, 4} and B = {3, 4, 5, 6}, find $(n(A \cup B) \times (A \cap B) \times (A \triangle B))$.
5) If p(A) denotes the power set of A, then find $n(P(P(P(\phi))))$.

5 x 3 = 15

6) In a survey of 5000 persons in a town, it was found that 45% of the persons know Language A, 25% know Language B, 10% know Language C,5% know Languages A and B, 4% know Languages B and C, and 4% know Languages A and C. If 3% of the persons know all the three Languages, find the number of persons who knows only Language A.
7) Check the relation R = {(1, 1) (2, 2) (3, 3) ... (n, n)} defined on the set S = {1, 2,3, .. n} for the three basic relations.
8) In the set Z of integers, define mRn if m - n is a multiple of 12. Prove that R is an equivalence relation.
9) Compare and contrast the graph $y = x^2 - 1$, $y = 4(x^2 - 1)$ and $y = (4x)^2 = 1$.
10) Let us now draw the graph of y = 2 sin (x - 1) + 3.

3 x 5 = 15

11) From the curve y=|x|, draw
    (i) y=|x+1|+1
    (ii) y=|x-1|-1
    (iii) y=|x+2|-3
12) If $f : R - \{-1, 1\} \to R$ is defined by $f(x) = \frac{x}{x^2-1}$, verify whether f is one-to-one or not.
13) Let f, g: $R \to R$ be defined as f (x) = 2x -|x| and g(x) = 2x + |x|. find fog.

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