

MCQ1: Let A consist of numbers 1, 3, 5, 7, 11, 13 and 17. Then, the set can be written as $A =$

Answer: 1,3,5,13,17

MCQ2: Let $B = \{x | x^2 \leq 20\}$ the number of elements in B is $|\{x \in \mathbb{Z} | x^2 \leq 20\}|$.

Answer: 2

MCQ3: Let $C = \{x \in \mathbb{Z} | x \text{ is all prime numbers less than } 20\}$

Answer: 6

MCQ4: Let $D = \{x | 4 \leq x \leq 9\}$. Find $n(D)$.

Answer: 5

MCQ5: Let $E = \{x | 0 \leq x \leq 1\}$. The number of element in E is $|\{x \in \mathbb{Z} | 0 \leq x \leq 1\}|$

Answer: 2

MCQ6: Given that $F = \{x | x \text{ is a letter in the word 'state'}\}$

Answer: 5

MCQ7: Given that $A = \{1, 2, 3, 5, 7, 11\}$ and $B = \{2, 3, 7, 11\}$. Find $n(A \cap B)$.

Answer: 1

MCQ8: Given that $B = \{x | x \text{ is the odd numbers less than } 10\}$ and

Answer: 10

MCQ9: Given that $F = \{x | x^2 - 3x + 2 = 0\}$, $G = \{1, 2, 2, 1\}$. $H = \{1, 2\}$. Find $n(F \cap G)$

Answer: 4

MCQ10: Given that $L = \{3, 4, 5\}$ and $M = \{5, 3, 4\}$. Then, $n(L \cap M) = n(L \cap M)$

Answer: 3

MCQ11: Let $L = \{1, 2\}$ and let $M = \{1, 2, 3\}$. From the question which one is correct?

Answer: L is not comparable to M

MCQ12: If M is a subset of N and N is a subset of P, then, M is a subset of P that is ..

Answer: M \subset N and M \subset P implies M \subset N

MCQ13: Let $P = \{a, b, c, d\}$. Find the number of subset of P.

Answer: 4

MCQ14: Let $P = \{1, 3, 7, 8\}$ and $Q = \{2, 4, 7, 9\}$. Find $n(P \cap Q)$.

Answer: 8

MCQ15: Let $X = \{2, 4, 6, 9\}$ and $Y = \{1, 3, 4\}$. Find $n(X \cap Y)$.

Answer: 1

MCQ16: If $X = \{1, x, 3, 4\}$ and $Y = \{r, s, t\}$, $n(X \cap Y)$ is $|\{x \in \mathbb{Z} | x^2 \leq 20\}|$.

Answer: 4

MCQ17: If $X \subset Y$ and $X \neq Y$, then X is a proper subset of ..

Answer: Y

MCQ18: Let $E = \{2, 4, 6, \dots\}$ and $E_1 = \{1, 3, 5, \dots\}$, then $E \cup E_1$ is a set of \mathbb{N} numbers

Answer: complex

MCQ19: Given $A = \{1, 2, 3, 4\}$, $B = \{2, 3, 5\}$ and $C = \{2, 4, 6\}$, find $A \cap B \cap C$

Answer: $\{2, 3, 4, 5, 6\}$

MCQ20: If $A = \{2, 4, 6, 8\}$, $B = \{x | x - 2 = 0\}$, $C = \{x | x \leq 8\}$

Answer: 5

MCQ21: If $X = \{1, 2, 3\}$, $Y = \{3, 4, 5\}$ and $Z = \{x | x \text{ is an odd number}\}$

Answer: 1

MCQ22: In the set of real numbers, which of these is true?

Answer: $\mathbb{N}, \mathbb{Z}, \mathbb{Q}, \mathbb{R}$

MCQ23: In geometry, the distance between two points that real numbers, x and y is $|x - y|$

Answer: $|x - y|$

MCQ24: Consider $x = \{x | 2 < x < 7\}$, this set is described as \mathbb{R} interval.

Answer: open interval

MCQ25: Given that $M = \{x | 3 \leq x \leq 7\}$, the set has \mathbb{R} interval.

Answer: closed-open

MCQ26: If $B = \{x | 2 \leq x \leq 9\}$, B can be described as \mathbb{R} interval

Answer: closed-open

MCQ27: A set of the form $x = \{x | x > 1\}$ is called a set of \mathbb{R} intervals.

Answer: definite

MCQ28: A set of the form $M = \{x | x \leq 5\}$ is an infinite set of interval written as $M = ?$

Answer: $-\infty, 5$

MCQ29: A set M is bounded if there exists a positive number M such that $x \in M$ for all $x \in M$

Answer: $x \in M$

MCQ30: Let $f(x) = x^2$ where x is a real number and let $g(x) = x^2$ where x is a complex number. Then, f is not equal to g because they have \mathbb{R} domains

Answer: different

MCQ31: If $f: B \rightarrow D$, then f is called a one-one or \mathbb{R} function.

Answer: surjective

MCQ32: Let f be \mathbb{R} function of X into Y , and let $b \in Y$. Then, the inverse

of $f^{-1}(b)$ denoted by $f^{-1}(b)$ therefore,

Answer: $f^{-1}(b) = \{x \in X; f(x) = b\}$

MCQ33: Let $f: A \rightarrow B$ is one-to-one and onto, then f^{-1}

Answer: An inverse function exists

MCQ34: Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be defined by $f(x) = 10x$ then f is a \dots since assigned to every element.

Answer: product

MCQ35: Let the function $f: X \rightarrow Y$ be one-one and onto or $f^{-1}: Y \rightarrow X$ exist, then $f^{-1} \circ f$ and $f \circ f^{-1}$

Answer: the identity function on X and on Y

MCQ36: If ordered pairs $(x+y, 1)$ and $(3, x-y)$ are equal, find x and y

Answer: $(3, 1)$

MCQ37: Find the value of annuity N10000 for a period of 5 years at 5% at the beginning of year 2020.

Answer: N 58019

MCQ38: The final value of a 10 year annuity due with nominal annual interest rate 9% and monthly payments of N10000.

Answer: N165.60

MCQ39: Find the operating cash flow indicator ratio given that the management of NOUN has free cash flow of N25 billion and the net cash provided expenditure for a particular period stands at N35 billion.

Answer: 71.43%

MCQ40: Financial statements that are cash flow computations can be done by \dots method(s).

Answer: Direct and Indirect

MCQ41: Find the angle between lines $2y = 3x - 8$ and $y = x.5 + 7.5$

Answer: 135°

MCQ42: Given that $\int_0^2 3f(x)dx$, find the integral calculus

Answer: 52

MCQ43: Find $\int_0^1 15x^2 dx$

Answer: 4114

MCQ44: If $dy/dx = 2x+3$, find y .

Answer: $x^2 + 3x + c$

MCQ45: Solve the differential equation $x^2 - 2x^4$ at $y=0, x=1$

Answer: $y = 1x + 35x^5 + 35$

MCQ46: Evaluate $\int 4x dx$

Answer: $4x^2 + C$

MCQ47: Evaluate $\int (3-4x) dx$

Answer: $4\ln 3 - 4x + C$

MCQ48: $\int \sin^3 x dx$

Answer: $-\cos x + \cos^3 x + c$

MCQ49: Solve $x-y=10$ and $x+y=10$. Simultaneously

Answer: $(10, 0)$

MCQ50: Solve $x-y=10$ and $x+y=10$. Simultaneously,

Answer: $(10, 0)$

Fill in the Blank (FBQs):

FBQ1: If $A = \{x | x^2 = 16\}$ then A is the set of x such that x squared equals 16 or

$A = \{4, -4\}$

Answer: $A = \{4, -4\}$

FBQ2: If $B = \{x | x - 2 = 8\}$ means B is the set of x such that x

$x - 2 = 8$

Answer: $x - 2 = 8$

FBQ3: If $D = \{x | x \text{ is a number of Federal universities}\}$

Answer: $\{6\}$

FBQ4: $S = \{x | x \text{ is a number of state capitals in Niger}\}$

Answer: $\{36\}$

FBQ5: Two sets A and B are equal if $A = B$.

Answer: $A = B$

FBQ6: The null set \emptyset is considered to be \emptyset .

Answer: \emptyset

FBQ7: \emptyset is a subset of itself

Answer: \emptyset

FBQ8: Two sets X and Y are $X \subseteq Y$ or $Y \subseteq X$

Answer: $X \subseteq Y$

FBQ9: Two sets X and Y are $X \not\subseteq Y$ or $Y \not\subseteq X$

Answer: $X \not\subseteq Y$

FBQ10: Given the set $\{1, 2, 3, 4\}$

Answer: $\{1, 2, 3, 4\}$

FBQ11: Let $M = \{a, 1, 2, 3, 4, 5\}$, then, M is not family of sets e.g. a,

Answer: *3*

Answer: *3*

FBQ12: Solve $x-y=10$ and $x+y=10$. Simultaneously,

Answer: *10, 0*

FBQ13: Two sets M and N are equal if and only if every element $\in M$ and every N belongs to M

Answer: *in M belongs to N*

FBQ14: The union of sets A and B is the set of all elements which belong to

Answer: *A or B or both*

FBQ15: $A \cup B$ means $\in A \cup B$

Answer: *A union B*

FBQ16: $A \cap B$ means _____ or set of all elements which belong to both A and B only

Answer: *A intersection B*

FBQ17: The set $A-B, A \cap B, B-A$ are mutually _____ that is intersection of any two sets is the null

Answer: *Disjoint*

FBQ18: $\in \mathbb{N}$ are positive integers

Answer: *Natural numbers*

FBQ19: The notation $x < 10$ means that x is a real number which is _____ is hence x lies to the left of 10

Answer: *less than 10*

FBQ20: The elements of the set $A = \{x \mid 2 < x < 7\}$ are $\in \mathbb{N}$

Answer: *{3,4,5,6}*

FBQ21: The set of the form $A = \{x \mid x > 1\}$ can be written as $\in \mathbb{N}$.

Answer: *{2,3,4,5,6}*

FBQ22: A function f of A and B is called $\in \mathbb{N}$. if the same element of $\in B$ is assigned to every element in A.

Answer: *constant function*

FBQ23: Let f be a function of A and B, and let $\in B$, then _____ is denoted by $f^{-1}(b)$

Answer: *inverse of b*

FBQ24: A series or fixed payments required from you or paid to you at a specified frequency over the course of a fixed time period is called _____

Answer: *Annuities*

FBQ25: A _____ is an annuity for which the payments continue forever.

Answer: *Perpetuity*

FBQ26: _____ is the movement of money into or out of a business, project or financial product.

Answer: *cash flow*

FBQ27: A fund into which a company sets aside money overtime, in order to retire its preferred stock, bonds or debentures is called _____

Answer: *sinking fund*

FBQ28: Interest that is computed on the previously accumulated interest as well as on the principal is called _____

Answer: *compound interest*

FBQ29: One of the disadvantages of LP model is that _____ are enormous even when assistance of large digital computers is available

Answer: *Computational difficulties*

FBQ30: Two matrices A and B are said to be equal, if they have the _____ and their corresponding entries are equal

Answer: *same dimension*

FBQ31: The set of all possible outcome of a random experiment is called _____ experiment

Answer: *Random*

FBQ32: _____ is an event that will never happen.

Answer: *impossible event*

FBQ33: If in two events, one of them precludes or prevents the occurrence of the other, then, it is called _____ events

Answer: *mutually exclusive*

FBQ34: One important property of the integers is that they are closed under the operations $\hat{+}$ and $\hat{-}$.

Answer: *multiplication, subtraction*

FBQ35: Rational numbers are closed under the operations addition, subtraction and multiplication but also division except _____

Answer: *Zero*

FBQ36: The irrational numbers are those real numbers which are not rational. True or False

Answer: *True*

FBQ37: The irrational numbers \mathbb{I} are complement of rational numbers \mathbb{R} . True or False

Answer: *True*

FBQ38: The notation $3 < x < 9$ means x lies between 3 and 9 on the real line. True or False

Answer: *True*

FBQ39: If f maps A into B , the f is called a one-one or $\hat{A} \rightarrow \hat{B}$.

Answer: *injective function*

FBQ40: If f maps A onto B , that is if every member of B appears as the image of at least one element of A , then f is onto or $\hat{A} \rightarrow \hat{B}$.

Answer: *surjective function*

FBQ41: Let $W = \{\text{days of the week}\}$ then W is \hat{A} set

Answer: *Finite*

FBQ42: Let $A = \{a, b\}$ and $D = \{a, c, d\}$, then sets A and D are not $\hat{A} \rightarrow \hat{B}$ since $C \in A$ and $b \in D$

Answer: *Comparable*

FBQ43: The family of all subsets of any set is called \hat{A} .

Answer: *power set*

FBQ44: Solve $x - y = 10$ and $x + y = 10$. Simultaneously

Answer: *0, $\hat{A} = 10$ *

FBQ45: The difference of sets M and N denoted by $M \hat{-} N$, is the set of elements which belong to M but which do not belong to N . True or False.

Answer: *True*

FBQ46: A function of A onto B is called a $\hat{A} \rightarrow \hat{B}$ if the same element of \hat{B} is assigned to carry every element in A .

Answer: *constant function*

FBQ47: Let $f: \hat{A} \rightarrow \hat{B}$ and $g: \hat{B} \rightarrow \hat{C}$ be two functions. Then, functions f and g denoted $g \circ f: \hat{A} \rightarrow \hat{C}$ is called $\hat{A} \rightarrow \hat{C}$.

Answer: *product function*

FBQ48: An $\hat{A} \rightarrow \hat{B}$ is the one whose payments are made at the beginning of each period.

Answer: *annuity-due*

FBQ49: A $\hat{A} \rightarrow \hat{B}$ is a contract between you and an issuer whereby you agree to give the issuer principal and in return the issuer guarantees you variable payment over time.

Answer: *variable annuity*

FBQ50: An accounting statement called the $\hat{A} \rightarrow \hat{B}$ which shows the amount of cash generated and used by a company in a given period.

Answer: *statement of cash flows*