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MATHS

BOOKS - TARGET PUBLICATION

QUESTION FROM STD. IX

Sets

1. Write the following set by listing method.

Letters in the word 'MATHEMATICS'`

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2. Write the following set in roster form

A ={x|x is a prime number , $1 < x < 20$ }

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3. Write the following set using rule method.

$B = \{1, 8, 27, 64\}$

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4. Write any two possible subsets of the set R.

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5. With the common notations used, state if the following statement is true and false . $I \subseteq N$

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6. Which set could be the universal set for the sets given below ?

A=set of multiples of 5

B=set of all even square numbers.

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7. If I is a universal set, then write the complement of the set N.

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8. If A={2,4,6} and B={1,2,3,4,5} , then show $A \cup B$ by using Venn diagram.

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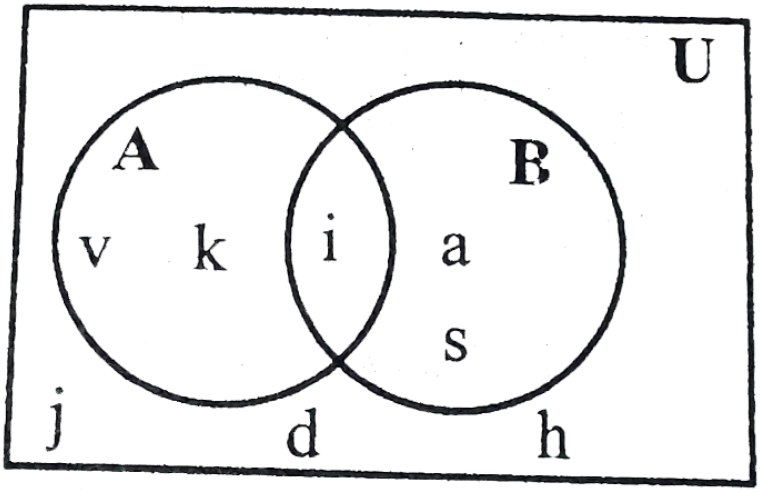
9. From the given Venn diagram write $(A \cap B)'$



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10. If $M \subseteq N$, then find $M \cap N$

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11. Write if the following statement is true or false. $A \cap A'$ is a singleton set.

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12. If A and B are disjoint sets, then write $A \cap B$

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13. If $n(A) = 8, n(B) = 12$ and $n(A \cap B) = 6$ then, find $n(A \cup B)$

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14. Decide whether set A and B are equal sets. Give reason for your answer. A = Even prime numbers B = {x |7x-1=13}

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15. In a class of 50 students 32 likes Mathematics , 24 like Science and 12 like both. Find the number of students who like neither of the two subjects.

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16. Write the following set using listing method and classify it as finite or infinite set .

$A = \{(a, b) \mid a, b \in W, a + b = 5\}$

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17. Choose the correct alternative answer for each of the following questions : If $P \subseteq M$, then which of the following set represent $P \cap (P \cup M)$?

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Real Numbers

1. Write any three rational numbers between 7.6 and 7.7 .

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2. State whether $\sqrt[3]{7}$ is a sqrt or not ?

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3. Write the order of the sqrt $\sqrt{\sqrt[3]{7}}$.

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4. Write the simplest form of sqrt $\sqrt{150}$

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5. Simiplify $10\sqrt{5} - 7\sqrt{5} + 3\sqrt{5}$

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6. Write the simplest rationalizing factor of $\sqrt{27}$

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7. Rationalize the denominator of $\frac{1}{\sqrt{6}}$.'

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8. Write the conjugate pair of $\sqrt{3} - \sqrt{6}$.

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9. Find the value of $|-7| \times |3|$

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10. Write $\frac{34}{99}$ in decimal form.

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11. Write 1.6 in $\frac{P}{q}$ form.

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12. Show $\sqrt{5}$ on a number line.

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13. State whether the surds $\sqrt{50}$ and $\sqrt{90}$ are like surds or unlike surds.

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14. Compare the surds : $6\sqrt{2}, 5\sqrt{3}$

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15. Simplify: $8\sqrt{5} + \sqrt{20} - \sqrt{125}$

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16. Multiply : $\sqrt{72} \times \sqrt{18}$

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17. Divide : $\sqrt{420} \div \sqrt{5}$

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18. Multiply : $\left(\sqrt{3}+\sqrt{2}\right)\left(5\sqrt{2}+\sqrt{3}\right)$

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19. Solve: $|3x-5|=1$

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Polynomials

1. Is the expression $x^2 - \frac{1}{x} + 3$ a polynomial ?

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2. Write an example of a monomial, a binomial and a trinomal having variable x and degree 5.

$Monomial \square B \in omial \square Tr \in omial \square$

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3. Write the degree of the polynomial $7x^3 + 10x^3 + x^6 - 8.$

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4. Write the degree of the given polynomial. $m^3n^7 - 3m^5n + mn$

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5. Classify the following as linear, quadratic or cubic polynomial : $2x^3$

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6. Write the polynomial $x^4 - 4$ in coefficient form.

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7. Multiply : $-7a^2 \times 3a$

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8. find the remainder when $x^3 - 3x^2 + x + 1$ is divided by $x + 1$.

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9. Add :$6p^2q - 5pq^2 - 3pq, 8pq^2 + 2p^2q - 2pq$

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10. Subtract the second polynomial from the first :

$3x^2y - 7xy^2 + 5xy, 2xy - x^2y + 7xy^2$

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11. What should be added to $x^2 - x^2 - x + 1$ to get $5x^2 - 4x^2 + 3x - 1$?

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12. If the sides of a triangle are $b-3a+2c, a+3b-3c$ and 2a-b+c, then find its perimeter.

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13. Multiply : x^2-2, x^3+2x^2+1

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14. Divide the following polynomial and write the remainder .

$\left(x^3 - 3x^2 + 4x + 12\right) \div (x - 1)$

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15. If $p(y) = y^2 - 3\sqrt{2}y + 1$, then find $p\left(3\sqrt{2}\right)$.

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16. If $p(y) = y^3 - 5y^2 + 5y + 10$, then find p(2) +p(-2).

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17. Factorize : $2x^2 - 8x + 6$

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Ratio And Proportion

1. For the given pair of numbers, find the reduced form of ratio fo first number to second number : 36, 54.

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2. Express the following percentage as ratio in the reduced form . 55:100

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3. If $\frac{a}{b} = \frac{7}{3}$, then find $\frac{a+b}{a-b}$

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4. Find the ratio of the first quantity to second quantity in the reduced form . 7 years 3 months 12 years 1 month.

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5. Write the ratio of first quantity to second quantity in the reduced form. $4sq.\ m, 800sq.\ cm$

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6. Convert the following ratio into percentage :

$\frac{7}{8}$

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7. 24 bananas were distributed between Shubham and Anil in the ratio 3:5 then how many bananas did Shubham get?

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8. Find the ratio of the diameter of a circle ot its circumference in the reduced form.

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9. Compare the following ratios : $\frac{\sqrt{16}}{3}, \frac{4}{\sqrt{24}}$

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10. If $\frac{a}{b} = \frac{5}{2}$, then find $\frac{3a - b}{b}$

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11. If $6m - n = 3m + 7n$, then find the value of $\frac{m^2}{n^2}$

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12. Check whether the numbers 4, 10 and 15 are in continued proportion or not ?

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13. If x is the geometric mean of 16 and 9, find x.

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Linear Questions In Two Variables

1. If $3x + 4y = 12$ and $4x + 3y = 9$, then find the value of x+y

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2. Write the following statement in Mathematical form, when 5 is subtracted from length and breadth of the rectangle, the perimeter becomes 26.

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3. If in $\Delta ABC, \angle A = 4x^\circ, \angle B = 2x^\circ$ and $\angle C = 4y^\circ$, then write a linear equation in two variable showing relation between x and y.

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4. Solve : $5x - 9y = 3$ and $5x - 10y = -5$

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5. 3 pencils and 4 pens cost $Rs.270$ while 4 pencils and 3 pens cost Rs. 150 . Find the combined cost of one pencil and one pen.

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Financial Planning

1. What is the maximum permissible deduction to various kinds of savings under section 80 C?

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Statistics

1. Classify the following information as primary or secondary data.

For a school project, literacy percentage of give villages gathered by a student from the internet.

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2. Find the classmark of the class 33-36.

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3. If the classes are 0-10, 10-20,20-30... then in which class should the observation 10 be inclused?

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4. From following table, what is the cumulative frequency of less than type for the class 30-40

?

Class	Frequency
0 – 10	7
10 – 20	3
20 – 30	12
30 – 40	13
40 – 50	2

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5. Find the mean of the following numbers :

12,16 , 20 , 24

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6. Let $\bar{x}$ be the mean of $x_1, x_2, \ldots\ldots\ldots, x_n$ and $\bar{y}$ be the mean of $y_1, y_2, \ldots\ldots\ldots, y_n$. If $\bar{z}$ is the mean of $x_1, x_2, \ldots\ldots\ldots\ldots\ldots x_n, y_1, y_2, \ldots\ldots\ldots\ldots, y_n$, then $\bar{z}$ is equal to

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7. Find the median of the following data.

87,39,45,67,25,109,78

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8. Find the mode of the folllowing data.

15,14,19,15,14,15,16,14,15,18,14,19,15,17,20

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9. If the mean of 20, 18 ,13 ,12, x and 10 is 15, then find the value of x.

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10. The mean of nine numbers is 77. If one more number is added to it then the mean increases by 5. Find the number added in the data.

11. Following 10 observations are arranged in ascending order as follows:2, 3, 5, 9, x + 1, x + 3, 14, 16, 19, 20 If the median of the data is 11, find the value of x