# MATHS

# BOOKS - TARGET MATHS (HINGLISH)

# 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.** Classify the following set as finite set or infinite set

$A = \{x \mid x \neq 1, x^2 = 16\}$

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**4.** 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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**5.** If $M \subseteq N$ , then find $M \cap N$

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

▶

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

**8.** If $n(A) = 8, n(B) = 12$ and $n(A \cap B) = 6$

then, find $n(A \cup B)$

**9.** Decide whether set A and B are equal sets.

Give reason for your answer.

A=Even prime numbers.

B={x :7x-1=13} .

**10.** 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.

**11.** 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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**12.** If $P \subseteq M$, then find $P \cap (P \cup M)$

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**13.** If M is any set, then write $M \cup \phi$ and $M \cap \phi$

## Real Numbers

**1.** The decimal form of the rational number $\frac{31}{125}$ will be terminating or non-terminating recurring type ?

**2.** Write any three rational numbers between 7.6 and 7.7 .

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

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

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

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

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

**8.** Rationalize the denominator of $\dfrac{1}{\sqrt{6}}$.'

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

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

**11.** Write $\dfrac{34}{99}$ in decimal form.

**12.** Write 1.6 in $\dfrac{P}{q}$ form.

**13.** Represent $\sqrt{5}$ on the number line

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

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

**16.** $8\sqrt{5} + \sqrt{20} - \sqrt{125}$

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**17.** Multiply : $\sqrt{72} \times \sqrt{18}$

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**18.** Divide : $\sqrt{420} \div \sqrt{5}$

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

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**20.** Rationalize the denominator $\dfrac{6}{2\sqrt{3} + \sqrt{6}}$

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**21.** Solve : $|3x - 5| = 1$

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

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**2.** By using variable x write any monomial and binominal each of degree 5.

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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 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.** Use the given letter to write the answer. There are 'a' trees in the village Last Year. If the number of trees increases every year by 'b' then how many trees will there be after 'x' years ?

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

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

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

**11.** Subtract the second polynomial from the first :

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

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

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

**14.** Multiply : $x^2 - 2, \ x^3 + 2x^2 + 1$

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**15.** Divide the following polynomial and write the remainder .

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

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**16.** If $P(y) = y^2 - \left[3\sqrt{2}\right]y + 1$, then find $p\left(3\sqrt{2}\right)$

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

**18.** If the remainder obtained when $x^3 + 5x^2 + ax - 7$ is divided by x-3 is 47, then find the value of a .

**19.** Show that m-1 is a factor of $m^{21} - 1$

**20.** Factorize : $2x^2 - 8x + 6$

**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

**3.** Using the property $\dfrac{a}{b} = \dfrac{ak}{bk}$ , fill in the blanks by substituting proper numbers in the following .

$$\dfrac{6}{11} = \dfrac{\ldots}{44} = \dfrac{3}{\ldots}$$

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

**5.** Fill in the blanks in the following statement .

$$\frac{a}{5} = \frac{b}{3} = \frac{2a + 3b}{\ldots}$$

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

**7.** Find the ratio of first quantity to second quantity in the reduced form 4 sq. m, 800 sq. cm

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**8.** Convert the following ratio into percentage :

$\dfrac{7}{8}$

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**9.** The ratio of ages of Ravi and Chirag is 2:3 . The ratio of ages of Chirag and Vikas is 1:5 . Find the ratio of the ages of Ravi, Chirag and Vikas.

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**10.** 24 bananas were distributed between Shubham and Anil in the ratio 3:5 , then how many bananas did Shubham get ?

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

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**12.** The ratio of boys and girls in a certain class is 5:4 If 4 boys and 4 girls are added, the ratio would be 6:5 . Find the number of boys and girls in the class.

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**13.** $\square PQRS$ is a parallelogram . The ratio measure of $\angle P$ and $\angle R$ is 3:7 . Find the measure of $\angle P$.

**14.** The ratio of expenditure and income of Mahesh is 3:5 . Find the percentage of savings to his income.

**15.** Four persons can build a wall in 12 days . How many persons will be required to build the same will in 8 days.

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

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**17.** If $\dfrac{a}{b} = \dfrac{5}{2}$ , then find $\dfrac{3a - b}{b}$

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

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

**20.** 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 mathematical form of the following statement using two two varable .

'when 5 is subtracted from length and breadth of a rectangle , its perimeter becomes 26'.

**3.** If in

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

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

**5.** Write the equations in two variables required to solve the problem.

Sum of ages of mother and her daughter is 60 years. After 15 years, mother's age at that time. Find their present ages.

**6.** 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.

**7.** The length of a rectangle is 2 cm more than its breadth. If the perimeter of the rectangle is 36 cm , find its length.

**1.** Mr. Ajay is 36 years old. His taxable income is Rs, 2,40,000. Will he have to pay income tax or not ?

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**2.** Miss Payal's age (age 29 years) annual tax is Rs. 3,75,000 . If she does not have any savings by which she can claim deductions from her

income, then to which slab does this income tax belong ?

**3.** What is the maximum permissble deduction to various kinds of savings under section 80C?

**4.** Mr. Vika, age 42 years and Mr. Rajesh age 64 years both have taxable income Rs. 6,00,000 .

Who will have to pay more income tax ?

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**5.** Mr., Ajit's payable amount of income tax is Rs. 8000. He has to pay education cess at 3% on income tax. How much total income tax will he have to pay ?

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**6.** Mihir saves 40 % of the money that he receives each month. If he saves Rs. 600 each month, then find the amount he gets monthly.

**7.** Mr. Manish age 30 years , is employed in a private company . His total annual income is Rs. 8,40,000 . He has contributed Rs. 40,000 to Public Provident Fund, paid a premium of Rs. 34,000 for yearly health insurance and donated

Rs. 10,000 to CM's flood relief fund. Find his taxable income.

**8.** Mr. Mayur's (age 47 years) annual income is Rs. 4,00,000 . If he does not have any savings by which he can claim duductions from his income. Then find the amount on which education cess will be levied.

**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 included ?

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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 $x_1, x_2, \ldots\ldots\ldots\ldots x_n, y_1, y_2, \ldots\ldots\ldots\ldots, y_n$, then $\bar{z}$ is equal to

**7.** Find the median of the following data.

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

**8.** Find the mode of the folllowing data.

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

**9.** If the class mark is 15 and the class width is 4, then write the algebraic expressions to find the class.

**10.** Make the following classes continuous . 6-10, 11-15,15-20.

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

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**12.** The calculated mean of 20 observations was 70. It was later discovered that observation 40 was recorded by mistake as 400. What is the correct mean ?

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

**14.** Following 10 observations are arranged in ascending order.

$2, 3, 5, 9, x + 1, x + 3, 14, 16, 19, 20$ . If the median of the data is 11, then find the value of x.