

HOLIDAY'S HOMEWORK (Class VI- MATHEMATICS)

1. Solve Chapterwise extra questions provided here.
2. Learn tables from 2 to 15.
3. Practise of first 3 chapters for test.

Extra Questions

Chapter 1. Knowing Our Numbers

1. Estimate : (i) $5,290 + 17,986$ (ii) $5,673 - 536$
2. Make the greatest and smallest 5-digit numbers using any five different digits with 4 in the tens place.
3. Write the following in Roman numerals: (i) 245 (ii) 433
4. Write the Predecessor of 50,70,000
5. Write the greatest number of 8 digits using 3,0,1,8.
6. The number of sheets of paper available for making notebooks is 75,000. Each sheet makes 8 pages of a notebook. Each notebook contains 200 pages. How many notebooks can be made from the paper available?
7. A vehicle covers 675 km in 15 hours. At what speed was the vehicle moving?
8. A machine produced 87,575 screws in January 2011. How many screws did it produce in one day of the same month?
9. How many milligrams make one kilogram?
10. Insert commas suitably and write the names according to Indian as well as International system of numeration. (i) 78921062 (ii) 5839428.

Chapter 2. Whole Numbers

1. Find the value of (i) $738 \times 25 + 738 \times 75$ (ii) $6289 \times 183 - 6289 \times 83$.
2. Find $14 + 17 + 6$ in two ways.
3. Find $8 \times 1769 \times 125$ by suitable rearrangement.
4. Find 12×135 using distributivity.
5. The distance between two cities is 42 km 755m. A bus makes 6 round trips everyday. How much distance does it cover in the month of May?
6. Dinesh buys 60 books and 60 copies. If the cost of a book is Rs.125 and that of a copy is Rs 75, Find the total money spent by him.
7. Find the population of a village which has 8750 men, 7963 women and 2037 children.
8. Determine the sums by suitable rearrangement (i) $1249 + 10001 + 3551 + 9999$
(ii) $1 + 2 + 3 + 4 + 596 + 697 + 598 + 699$.
9. The school canteen charges Rs 20 for lunch and Rs 4 for milk for each day. How much money do you spend in 5 days on these things?
10. Write next three Natural numbers after 12629.

Class VI- MATHEMATICS

Multiple choice questions

Chapter 1. Knowing Our Numbers

- The smallest four-digit number that can be made using the digits 5, 3, 6, 4 without repetition is:
(a) 3546 (b) 3544 (c) 3456 (d) 3455
- Make the greatest 4-digit number by using any one digit twice 0, 8, 5:
(a) 6630 (b) 6603 (c) 8360 (d) 8306
- Make the smallest 4-digit number by using any one digit twice 4, 9, 2:
(a) 2234 (b) 2243 (c) 2432 (d) 2324
- The greatest 4-digit number is:
(a) 8888 (b) 8788 (c) 9978 (d) 9999
- 1 million = how many lakh?
(a) 10 (b) 100 (c) 1000 (d) 10000
- 1 billion = how many million?
(a) 10 (b) 100 (c) 1000 (d) 10000
- The greatest number of the following numbers 1000, 10000, 10, 1000000, 100000 is:
(a) 1000000 (b) 100000 (c) 10000 (d) 1000
- Insert comma suitably in 67810138:
(a) 67,810,138 (b) 67,81,01,38 (c) 6,78,10,138 (d) 678,10138
- 1 metre = ? millimetres
(a) 10 (b) 100 (c) 1000 (d) none of these.
- Which of the following rounding off is correct?
(a) 841 → 800 (b) 288 → 200 (c) 9870 → 9800 (d) 87 → 80
- In Roman numerals I stands for:
(a) 100 (b) 50 (c) 70 (d) 90
- In Roman numerals C stands for:
(a) 10 (b) 100 (c) 1000 (d) 1
- 90 in Roman numerals is:
(a) XL (b) XLI (c) CX (d) LX
- The difference between the greatest number of 4-digit and the smallest number of 5-digit is
(a) 1 (b) 10 (c) 100 (d) 11
- The number name of 8090056 is:
(a) Eight lakh ninety thousand fifty six (b) Eighty lakh nine thousand fifty six
(c) Eighty lakh ninety thousand fifty six (d) Eight lakh nine thousand fifty six
- The greatest number of 8 digits using 3, 9, 1, 8 is:
(a) 88888888 (b) 80011888 (c) 88888810 (d) 10000038
- Two billion two hundred million two hundred thousand two hundred and two in figure is:
(a) 2000200202 (b) 2002020202 (c) 2002000202 (d) 202020002
- A symbol can be repeated at the most:
(a) One-time (b) Three times (c) Two times (d) Four times

Class VI- MATHEMATICS

Multiple choice questions

Chapter 2. Whole Numbers

1. ' $13 + 15 = 15 + 13$ '
The above is known as :
(a) Closure property (b) Commutativity of addition
(c) Commutativity of multiplication (d) None of these
2. ' $(12 \times 13) \times 14 = 12 \times (13 \times 14)$ '
The above is known as :
(a) Commutativity of addition (b) Commutativity of multiplication
(c) Associativity of addition (d) Associativity of multiplication
3. ' $12 \times (13 + 14) = (12 \times 13) + (12 \times 14)$ '
The above is known as :
(a) Distributivity of multiplication over addition
(b) Associativity of addition
(c) Associativity of multiplication
(d) None of these
4. The number 5 can be arranged as a :
(a) line (b) rectangle (c) square (d) triangle
5. The number 10 cannot be shown as a :
(a) square (b) line (c) rectangle (d) triangle
6. First triangular number is :
(a) 3 (b) 6 (c) 10 (d) 15
7. Which of the following numbers cannot be shown by two rectangles ?
(a) 12 (b) 18 (c) 16 (d) 13
8. Which of the following numbers is not a triangular number ?
(a) 3 (b) 6 (c) 10 (d) 9
9. Which of the following numbers cannot that arranged as a rectangle ?
(a) 4 (b) 6 (c) 8 (d) 7
10. The successor of the smallest counting number is :
(a) 0 (b) 1 (c) 2 (d) 3
11. The whole number which does not have predecessor is :
(a) 0 (b) 1 (c) 2 (d) none of these
12. Which of the following statements is false ?
(a) $25 + 98 = 98 + 25$ (b) $(29 + 41)$ is not a whole number
(c) $35 + 0 = 0 + 35 = 35$ (d) $(3 + 25) + 9 = (3 + 9) + 25$
13. The value of $0 + 20$ is :
(a) 10 (b) 0 (c) not defined (d) 200

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CLASS VII

1. Can you find a pattern for each of the following? If yes, complete them:
 - (a) 7, 3, -1, -5, _____, _____
 - (b) -2, -4, -6, -8, _____, _____
 - (c) 15, 10, 5, 0, _____, _____
 - (d) -11, -8, -5, -2, _____, _____
2. In a quiz, positive marks are given for correct answers and negative marks are given for incorrect answers. If Jack's scores in five successive rounds were 25, -5, -10, 15 and 10, what was his total at the end?
3. 1. Write a pair of integers whose sum gives
 - (a) a negative integer (b) zero (c) an integer smaller than both the integers. (d) an integer smaller than only one of the integers. (e) an integer greater than both the integers.
4. Write a pair of integers whose difference gives
 - (a) a negative integer. (b) zero. (c) an integer smaller than both the integers. (d) an integer greater than only one of the integers. (e) an integer greater than both the integers.
5. In a quiz, team A scored -40, 10, 0 and team B scored 10, 0, -40 in three successive rounds. Which team scored more? Can we say that we can add integers in any order?
6. 1. Find: (a) $15 \times (-16)$ (b) $21 \times (-32)$ (c) $(-42) \times 12$ (d) -55×15
7. Check if (a) $25 \times (-21) = (-25) \times 21$ (b) $(-23) \times 20 = 23 \times (-20)$
Write five more such examples
8. Find each of the following products:
 - (i) $(-18) \times (-10) \times 9$ (ii) $(-20) \times (-2) \times (-5) \times 7$
 - (iii) $(-1) \times (-5) \times (-4) \times (-6)$
9. Verify $(-30) \times [13 + (-3)] = [(-30) \times 13] + [(-30) \times (-3)]$
10. Find: (a) $125 \div (-25)$ (b) $80 \div (-5)$ (c) $64 \div (-16)$
11. Write five pairs of integers (a, b) such that $a \div b = -3$. One such pair is $(6, -2)$ because $6 \div (-2) = (-3)$.
12. An elevator descends into a mine shaft at the rate of 6 m/min. If the descent starts from 10 m above the ground level, how long will it take to reach -350 m.
13. Which numbers can be shown only as a line?
14. Which can be shown as squares?
15. Which can be shown as rectangles?
16. Write down the first seven numbers that can be arranged as triangles, e.g. 3, 6, ...
17. Draw six different colorful pictures (situations) showing use of maths in daily lives.
18. Draw three colorful pictures showing use of Roman Numbers in our life.
19. Write even and odd numbers separately between 500 to 700.
20. Write the name of any two Indian Mathematician and their work in mathematics.

Class VII- MATHEMATICS

Multiple choice questions

Chapter 1. INTEGERS

1. On subtracting (-6) from 0 , we get :
(a) -6 (b) 6 (c) 0 (d) none of these
2. The successor of (-1) is :
(a) 0 (b) 1 (c) -2 (d) 2
3. What is the additive inverse of -11 ?
(a) $\frac{1}{11}$ (b) 11 (c) $-\frac{1}{11}$ (d) none of these
4. The product of a positive and negative integer is :
(a) negative (b) 0 (c) positive (d) -1
5. $6 - (-8) = ?$
(a) 2 (b) -2 (c) 14 (d) 10
6. The Predecessor of -2 is :
(a) -1 (b) -3 (c) 1 (d) 0
7. When 0 is divided by (-10) , we get :
(a) -10 (b) 10 (c) -1 (d) 0
8. $-15 \times \dots = -15$ is :
(a) 0 (b) -1 (c) 1 (d) 2
9. $(-9) - (-6) = ?$
(a) 3 (b) -15 (c) -3 (d) 2
10. $(-18) \div 0 = ?$
(a) -18 (b) 18 (c) 0 (d) Not defined
11. $31 - (3 + 4)$ is :
(a) -24 (b) 24 (c) 38 (d) -38
12. The absolute value of an integer is equal to the distance of that number, on the number line from :
(a) 0 (b) 1
(c) -1 (d) the opposite of that number

Multiple choice questions

Chapter 2. FRACTIONS & DECIMALS

1. Which of the following is an improper fraction ?
 (a) $\frac{7}{10}$ (b) $\frac{7}{9}$ (c) $\frac{9}{7}$ (d) None of these
2. Reciprocal of $2\frac{3}{4}$ is:
 (a) $\frac{4}{11}$ (b) $\frac{11}{4}$ (c) $\frac{5}{4}$ (d) $\frac{4}{5}$
3. $\frac{8}{10} + \frac{6}{10}$ is:
 (a) $\frac{8}{5}$ (b) $\frac{7}{5}$ (c) $\frac{4}{5}$ (d) 1
4. $0.2 \times 0.2 \times 0.2 = ?$
 (a) 0.8 (b) 0.08 (c) 0.008 (d) 8
5. $\frac{2}{3}$ and $\frac{4}{7}$ which is greater ?
 (a) $\frac{2}{3}$ (b) $\frac{4}{7}$ (c) Both equal (d) none
6. Which of the following is an irreducible fraction ?
 (a) $\frac{24}{93}$ (b) $\frac{14}{35}$ (c) $\frac{11}{37}$ (d) none of these
7. $3.28 \div 8$ is:
 (a) 0.41 (b) 0.041 (c) 4.1 (d) 3.4011
8. $0.72 \div 80$ is:
 (a) 9 (b) 0.9 (c) 0.09 (d) 0.009
9. $\frac{1}{2} \times \frac{3}{7} \div \frac{1}{7}$ is:
 (a) $\frac{3}{2}$ (b) $1\frac{1}{2}$ (c) $\frac{1}{7}$ (d) $\frac{8}{9}$
10. 0.273×14 is equal to:
 (a) 38.22 (b) 3.822 (c) 0.0822 (d) 3822
11. $\frac{8}{15} + \frac{3}{15}$ is equal to:
 (a) $\frac{15}{11}$ (b) $\frac{11}{15}$ (c) $\frac{12}{15}$ (d) $\frac{13}{15}$
12. $1\frac{4}{9} \times 6$ is equal to:
 (a) $8\frac{2}{3}$ (b) $7\frac{2}{3}$ (c) $6\frac{5}{3}$ (d) $4\frac{8}{5}$
13. $0.082 \div 40 = ?$
 (a) 08 (b) 008 (c) 0008 (d) 00008
14. $\frac{7}{10} - \frac{2}{5} = ?$
 (a) $\frac{5}{10}$ (b) $\frac{4}{10}$ (c) $\frac{3}{10}$ (d) $\frac{2}{10}$
15. 4 kg 8 g in kg is:
 (a) 40.08 kg (b) 4.008 kg (c) 4008 kg (d) 400.8 kg

7(13)

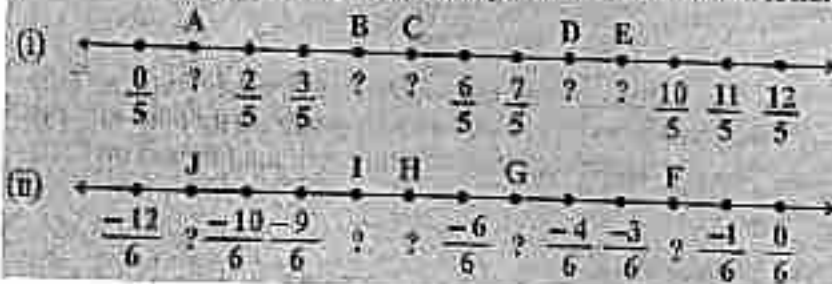
Class VIII

1. FIND $3/7 + (-6/11) + (-8/21) + 5/22$.
2. Find by using distributive property.

$$(i) \left\{ \frac{7}{5} \times \left(\frac{-3}{12} \right) \right\} + \left\{ \frac{7}{5} \times \frac{5}{12} \right\} \quad (ii) \left\{ \frac{9}{16} \times \frac{4}{12} \right\} + \left\{ \frac{9}{16} \times \frac{-3}{9} \right\}$$

3. Write.
 - (i) The rational number that does not have a reciprocal.
 - (ii) The rational numbers that are equal to their reciprocals.
 - (iii) The rational number that is equal to its negative.
4. Fill in the blanks.
 - (i) Zero has _____ reciprocal.
 - (ii) The numbers _____ and _____ are their own reciprocals.
 - (iii) The reciprocal of -5 is _____.
 - (iv) Reciprocal of $1/x$, where $x \neq 0$ is _____.
 - (v) The product of two rational numbers is always a _____.
 - (vi) The reciprocal of a positive rational number is _____.
- 5.

Write the rational number for each point labelled with a letter.



6. Write any 3 rational numbers between -2 and 0 .
7. Write five rational numbers greater than -100 .
- 8.

What should be added to twice the rational number $\frac{-7}{3}$ to get $\frac{3}{7}$?

9. Bansal has 3 times as many two-rupee coins as he has five-rupee coins. If he has in all a sum of Rs 77, how many coins of each denomination does he have?
10. Deveshi has a total of Rs 590 as currency notes in the denominations of Rs 50, Rs 20 and Rs 10. The ratio of the number of Rs 50 notes and Rs 20 notes is 3:5. If she has a total of 25 notes, how many notes of each denomination she has?

Class VIII- MATHEMATICS

Multiple choice questions

Chapter 1. RATIONAL NUMBERS

1. $\frac{0}{6}$ is a
 - (a) Positive rational number
 - (b) Negative rational number
 - (c) Either positive or negative rational number
 - (d) Neither positive nor negative rational number
2. $\frac{-3}{-20}$ is a
 - (a) Positive rational number
 - (b) Negative rational number
 - (c) Either positive or negative rational number
 - (d) Neither positive nor negative rational number
3. What is the additive inverse of $\frac{-3}{8}$?
 - (a) $\frac{3}{8}$
 - (b) $\frac{8}{3}$
 - (c) $\frac{-8}{3}$
 - (d) none of these
4. The reciprocal of 'q' is
 - (a) -q
 - (b) $\frac{1}{q}$
 - (c) $\frac{1}{-q}$
 - (d) -2q
5. Which of the following is neither positive nor a negative rational number?
 - (a) 1
 - (b) 0
 - (c) -1
 - (d) 2
6. What should be added to $\frac{-3}{4}$ to get -1?
 - (a) $\frac{1}{4}$
 - (b) $-\frac{1}{4}$
 - (c) 1
 - (d) $-\frac{3}{4}$
7. $\frac{3}{4} - \frac{-1}{3}$ is
 - (a) $\frac{-4}{12}$
 - (b) $\frac{-16}{12}$
 - (c) $\frac{-5}{12}$
 - (d) $\frac{-4}{1}$
8. Which property of multiplication is illustrated by $\frac{-2}{3} \times \left(\frac{5}{8} + \frac{3}{7} \right) = \left(\frac{-2}{3} \times \frac{5}{8} \right) + \left(\frac{-2}{3} \times \frac{3}{7} \right)$?
 - (a) Commutative
 - (b) Distributive
 - (c) Associative
 - (d) None of these
9. The product of the additive inverse and the multiplication inverse of -3 is
 - (a) 1
 - (b) 0
 - (c) -1
 - (d) -9
10. Which property is illustrated by $-\frac{3}{7} \times \left(\frac{4}{5} \times \frac{7}{6} \right) = \left(\frac{-3}{7} \times \frac{4}{5} \right) \times \frac{7}{6}$?
 - (a) Commutative property
 - (b) Associative property
 - (c) Distributive property
 - (d) Closure property

Multiple choice questions

Chapter 2. Linear Equations in one variable

Select the correct answer from the given four alternative answers:

1. Which of the following is not a linear equation?

(a) $3x - 1 = -2x$ (b) $\frac{3}{4}x - y = 2$ (c) $xy - 3 = x$ (d) $\frac{x-6}{7} = \frac{x}{11}$

2. The solution of $3 + \frac{x}{4} = 5$ is

(a) $x = -17$ (b) $x = 8$ (c) $x = 2$ (d) $x = 4$

3. The solution of $8 - 3x = -10$ is

(a) $x = -6$ (b) $x = 6$ (c) $x = 7$ (d) $x = 5$

4. Which of the following is the solution of $2x - 2 = x + 3$?

(a) $x = 4$ (b) $x = 5$ (c) $x = 7$ (d) $x = -2$

5. If one-third of a number is 4 more than 5, then the number is

(a) 27 (b) 20 (c) 28 (d) 30

[Hint: $\left[\frac{1}{3}x - 4 = 5\right]$

6. If $\frac{1}{3}$ of a number is 10 less than the original number, then the number is

(a) 30 (b) 15 (c) 10 (d) 27

[Hint: $\frac{1}{3}x = x - 10 \Rightarrow x = 15$]

7. The two consecutive multiples of 3 whose sum is 57 are

(a) 23, 33 (b) 27, 30 (c) 21, 36 (d) 28, 29

[Hint: $[x] + [x + 3] = 57$]

8. The sum of two consecutive multiples of 5 is 55, then the numbers are

(a) 20, 35 (b) 25, 30 (c) 32, 23 (d) 15, 40

9. Five times a number exceeds 60 by 5, the number is

(a) 12 (b) 14 (c) 13 (d) 11

10. In a class of 52 students, the number of boys is $\frac{6}{7}$ of the number of girls. The number of boys

(a) 20 (b) 21 (c) 24 (d) 25

[Hint: No. of boys = $\frac{6}{7}$ of no. of girls, $x + \frac{6}{7}x = 52$ (Here, no. of girls = x)

11. If $\frac{50}{x} + 4 = 14$, then x is

(a) 5 (b) 2 (c) $\frac{26}{9}$ (d) 10

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MCQ CLASS IX

Write the correct answer in each of the following:

- Every rational number is
(A) a natural number (B) an integer (C) a real number (D) a whole number
- Between two rational numbers
(A) there is no rational number (B) there is exactly one rational number
(C) there are infinitely many rational numbers (D) there are only rational numbers and no irrational numbers
- Decimal representation of a rational number cannot be
(A) terminating (B) non-terminating (C) non-terminating repeating (D) non-terminating non-repeating
- The product of any two irrational numbers is
(A) always an irrational number (B) always a rational number (C) always an integer (D) sometimes rational, sometimes irrational
- The decimal expansion of the number $\frac{1}{2}$ is
(A) a finite decimal (B) 1.41421 (C) non-terminating recurring (D) non-terminating non-recurring

6. Which of the following is irrational?

- (A) $\sqrt{\frac{4}{9}}$ (B) $\frac{\sqrt{12}}{\sqrt{3}}$ (C) $\sqrt{7}$ (D) $\sqrt{81}$

7. Which of the following is irrational?

- (A) 0.14 (B) $0.14\overline{16}$ (C) $0.\overline{1416}$ (D) 0.4014001400014...

8. A rational number between $\sqrt{2}$ and $\sqrt{3}$ is

- (A) $\frac{\sqrt{2} + \sqrt{3}}{2}$ (B) $\frac{\sqrt{2} \cdot \sqrt{3}}{2}$ (C) 1.5 (D) 1.8

9. The value of $1.999\dots$ in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$, is

- (A) $\frac{19}{10}$ (B) $\frac{1999}{1000}$ (C) 2 (D) $\frac{1}{9}$

10. $2\sqrt{3} + \sqrt{3}$ is equal to

- (A) $2\sqrt{6}$ (B) 6 (C) $3\sqrt{3}$ (D) $4\sqrt{6}$

9(1)

Class IX- MATHEMATICS

SELF ASSESSMENT

Chapter 1. Rational Numbers

Time: 45 min.

M.M.: 25

Section-A

1. Find the value of 1.999 in the form $\frac{p}{q}$, where p, q are integers, $q \neq 0$. [1]
- (A) $\frac{19}{10}$ (B) $\frac{1999}{1000}$ (C) 2 (D) $\frac{1}{9}$

2. If $x^{\frac{1}{12}} = 49^{\frac{1}{24}}$, then find x . [1]

Section-B

3. Find four rational numbers between $-\frac{2}{8}$ and $\frac{3}{2}$. [2]
4. If $x = 3 + 2\sqrt{2}$, then find the value of $(x - \frac{1}{x})^3$. [2]
5. Simplify: $\sqrt[3]{81} - 8\sqrt[3]{216} + 15\sqrt[3]{32} + \sqrt{225}$ [2]

Or

Show that $\frac{x^{a(b-c)}}{x^{b(a-c)}} + \left(\frac{x^b}{x^a}\right)^c = 1$ [2]

Section-C

6. Represent $\sqrt{8}$ on the number line. [3]

Or

Two students Ravi and Raj were quarrelling with each other on the issue: "Whether 'x' is a rational number or an irrational number." Ravi said that 'x' is a rational number as it is equal to $\frac{22}{7}$. Raj argued that 'x' is an irrational number as it is a non-terminating non-recurring decimal. Who is correct, Ravi or Raj?

7. If $x = 3 + 2\sqrt{2}$, find the value of $(\sqrt{x} - \frac{1}{\sqrt{x}})$. [3]

8. Simplify: $(\frac{81}{16})^{-\frac{3}{4}} \left[\left(\frac{25}{9}\right)^{-\frac{3}{2}} + \left(\frac{5}{2}\right)^{-3} \right]$ [3]

Section-D

9. Find the values of a and b , if [4]

$$\frac{7+3\sqrt{5}}{3+\sqrt{5}} - \frac{7-3\sqrt{5}}{3-\sqrt{5}} = a + \sqrt{5}b$$

10. If $\frac{9^{m+1} \times (3^{2m+2})^{-2} - 27^m}{(3^m \times 2)^8} = \frac{1}{729}$, prove that $m - n = 2$. [4]

9(2)

Class IX- MATHEMATICS

SELF ASSESSMENT

Chapter 2. Polynomials

M.M.: 25

Time: 45 min.

Section-A

1. Find the degree of the polynomial $2 - y^3 + 7y^6 - 0(y^6) - y$. [1]
2. The polynomial $2x^3 - kx^2 + 7x - 1$, when divided by $x - 1$, leaves the remainder 3. Then find the value of k . [1]

Section-B

3. Give possible expressions for the length and breadth of a rectangle whose area is given by $25a^2 - 35a + 12$. [2]
4. Factorise: $27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}p$. [2]
5. If $\left(\frac{8}{15}\right)^x - \left(\frac{1}{3}\right)^x - \left(\frac{1}{5}\right)^x = \frac{x}{75}$, find x . [2]

Section-C

6. If the polynomials $2x^3 + ax^2 + 3x - 5$ and $x^3 + x^2 - 2x + a$ leave the same remainder when divided by $x - 2$, find the value of a . [3]

7. Factorise: $x^6 - y^6$. [3]
8. If $a^2 + b^2 + c^2 = 30$ and $a + b + c = 10$, then find the value of $ab + bc + ca$. [3]

Section-D

9. Raghu tells Ved that his age (in years) is equal to the coefficient of x^2 in the polynomial $(x + 5)^5$. Further, he asserts that after two years, his age (in years) will be equal to half of the coefficient of x^2 in the polynomial $(2x + 3)^5$.
(i) Find the age of Raghu as per his first statement.
(ii) Find the age of Raghu after two years as per his second statement.
10. Simplify: $\frac{(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3}{(a - b)^3 + (b - c)^3 + (c - a)^3}$. [4]

Or

Find the value of $(x - a)^3 + (x - b)^3 + (x - c)^3 - 3(x - a)(x - b)(x - c)$, if $a + b + c = 3x$.

9(3)

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CLASS X

CH 1 & CH 2

1. Use Euclid's division algorithm to find the HCF of 441, 567, 693.
2. "The product of two consecutive positive integers is divisible by 2". Is this statement true or false? Give reasons.
3. "The product of three consecutive positive integers is divisible by 6". Is this statement true or false? Justify your answer.
4. Show that the square of any positive integer is either of the form $4q$ or $4q + 1$ for some integer q .
5. A positive integer is of the form $3q + 1$, q being a natural number. Can you write its square in any form other than $3m + 1$, i.e., $3m$ or $3m + 2$ for some integer m ? Justify your answer.
6. The numbers 525 and 3000 are both divisible only by 3, 5, 15, 25 and 75. What is HCF (525, 3000)? Justify your answer.
7. Explain why $3 \times 5 \times 7 + 7$ is a composite number.
8. Using Euclid's division algorithm, find the largest number that divides 1251, 9377 and 15628 leaving remainders 1, 2 and 3, respectively.
9. Using Euclid's division algorithm, find which of the following pairs of numbers are co-prime:
(i) 231, 396 (ii) 847, 2160
10. A rational number in its decimal expansion is 327.7081. What can you say about the prime factors of q , when this number is expressed in the form p/q ?
11. Show that $12n$ cannot end with the digit 0 or 5 for any natural number n .
12. On a morning walk, three persons step off together and their steps measure 40 cm, 42 cm and 45 cm, respectively. What is the minimum distance each should walk so that each can cover the same distance in complete steps?
13. If one of the zeroes of the quadratic polynomial $(k-1)x^2 + kx + 1$ is -3 , then the value of k is?
14. A quadratic polynomial, whose zeroes are -3 and 4 , is?
15. If the zeroes of the quadratic polynomial $x^2 + (a+1)x - b$ are 2 and -3 , then
(A) $a = -7, b = -1$ (B) $a = 5, b = -1$ (C) $a = 2, b = -6$ (D) $a = 0, b = -6$
16. The number of polynomials having zeroes as -2 and 5 is
(A) 1 (B) 2 (C) 3 (D) more than 3
17. Given that one of the zeroes of the cubic polynomial $ax^3 - bx^2 - cx + d$ is zero, the product of the other two zeroes is?
18. If one of the zeroes of the cubic polynomial $x^3 + ax^2 + bx + c$ is -1 , then the product of the other two zeroes is?
19. Use Euclid's division lemma to show that the cube of any positive integer is of the form $9m, 9m + 1$ or $9m + 8$.
20. Find the LCM and HCF of the following pairs of integers and verify that $\text{LCM} \times \text{HCF} = \text{product of the two numbers}$. (i) 26 and 91 (ii) 510 and 92 (iii) 336 and 54
21. Find the LCM and HCF of the following integers by applying the prime factorization method.
(i) 12, 15 and 21 (ii) 17, 23 and 29 (iii) 8, 9 and 25
22. Prove that $\sqrt{5}$ is irrational and Prove that $3 + 2\sqrt{5}$ is irrational.
23. If the zeroes of the polynomial $x^2 - 3x + 1$ are $a - b, a, a - b$, find a and b .
24. Find all the zeroes of $2x^3 - 3x^2 - 3x + 2$, if you know that two of its zeroes are $\sqrt{2}$ and $-\sqrt{2}$.
25. Divide $3x^2 - x^3 - 3x + 5$ by $x - 1 - x^2$, and verify the division algorithm.

10(1)

MCQ CLASS X

Ch-1

1. Choose the correct answer from the given four options in the following questions:

- For some integer m , every even integer is of the form
(A) m (B) $m+1$ (C) $2m$ (D) $2m+1$
- For some integer q , every odd integer is of the form
(A) q (B) $q+1$ (C) $2q$ (D) $2q-1$
- n^2-1 is divisible by 8, if n is
(A) an integer (B) a natural number (C) an odd integer (D) an even integer
- If the HCF of 65 and 117 is expressible in the form $65m-117$, then the value of m is
(A) 4 (B) 2 (C) 1 (D) 3
- The largest number which divides 70 and 125, leaving remainders 5 and 8, respectively, is
(A) 13 (B) 65 (C) 875 (D) 1750
- If two positive integers a and b are written as $a = x^2y^2$ and $b = xy^2$; x, y are prime numbers, then HCF (a, b) is
(A) xy (B) xy^2 (C) x^2y^2 (D) xy^2
- If two positive integers p and q can be expressed as $p = ab^2$ and $q = a^2b$; a, b being prime numbers, then LCM (p, q) is (A) ab (B) a^2b^2 (C) a^3b^2 (D) a^2b^3
- The product of a non-zero rational and an irrational number is
(A) always irrational (B) always rational (C) rational or irrational (D) one
- The least number that is divisible by all the numbers from 1 to 10 (both inclusive) is
(A) 10 (B) 100 (C) 504 (D) 2520
- The decimal expansion of the rational number $14587/1250$ will terminate after
(A) one decimal place (B) two decimal places (C) three decimal places (D) four decimal places

Ch-2

1. If one of the zeroes of the quadratic polynomial $(k-1)x^2 + kx + 1$ is -3 , then the value of k is

- (A) $\frac{4}{3}$ (B) $\frac{-4}{3}$ (C) $\frac{2}{3}$ (D) $\frac{-2}{3}$

2. A quadratic polynomial, whose zeroes are -3 and 4 , is

- (A) $x^2 - x + 12$ (B) $x^2 + x + 12$
(C) $\frac{x^2}{2} - \frac{x}{2} - 6$ (D) $2x^2 + 2x - 24$

3. If the zeroes of the quadratic polynomial $x^2 + (a+1)x + b$ are 2 and -3 , then

- (A) $a = -7, b = -1$ (B) $a = 5, b = -1$
(C) $a = 2, b = -6$ (D) $a = 0, b = -6$

4. The number of polynomials having zeroes as -2 and 5 is

- (A) 1 (B) 2 (C) 3 (D) more than 3

10(2)