CLASS VIII

CHAPTER- LINEAR EQUATION

CONSTANT: A symbol having fixed value. It is denoted numerically.ex- 1, 2, 3

Variable: A Symbol having not a fixed value. It is denoted alphabetically. Ex-x,y,z

Algebraic Expression: combination of constant and variable using mathematical operation (+,-,x,÷)

Equation: An Algebraic Expression becomes an equation when it equals something. Ex- 4x-3, -3x-7

Methods of solving a linear equation

- Adding/subtracting the same number to/from both sides.
- Multiplying/dividing both sides by same number.

Rule of transposition

It states that any term can be transposed from one side of an equation to the other by changing it sign.

i.e **+to- , -to+, x to ÷ and ÷ to x**

Assignment

Q1: Solve the following equation:

i) $\frac{x}{3}$ -5= 8

ii) $\frac{t+8}{3}$ = t

iii) $\frac{2m}{3}$ +$\frac{3m}{4}$ =17

iv) 2.8v=54+v

v) 10p – (3p-4) =4(p+1) +9

vi) $\frac{x+3}{7}$ - $\frac{2x-5}{3}$ =$\frac{3x-5}{5}$

vii) $\frac{m-3}{m+4}$ = $\frac{m+1}{m-2}$

viii) $\frac{17(2-x)-5(x+12)}{1-7x}$ =8

Q2: Find 3 consecutive odd numbers whose sum is 45.

Q3: Find 3 consecutive even numbers whose sum is 246.

Q4: Find 3 consecutive numbers whose sum is 108.

Q5: Denominator of fraction is 3 more than numerator. If 5 is added to both the parts the resulting fraction is$\frac{4}{5}$. Find the numbers.

Q6: Sum of the digit of a two digit number is 7. The number obtained by interchanging the digit exceeds the original number by 27. Find the numbers.

Q7: Kiran is 24 years older than Rakesh. 10 years back Kiran age was 5 times the age of Rakesh. Find their ages.

Q8: Ten years ago , A's age was half of B's age. If the ratio of their present ages is 3:4. What will be the sum of their present ages?

Q9: The ratio of the present ages of two brothers is 1:2 and 15 years back the ratio was 1:3. What will be the ratio of their ages after five year?

Q10: A car travelling at 60km/hr left Dehradun at 3 p.m. one hour later, another car travelling at 80km/hour started over the same road to overtake the first. How Long Must the Second car travel to overtake the first car?

ASSIGNMENT

CHAPTER - SQUARE ROOT AND CUBES ROOT

SHORT ANSWER

Q1: Find square root of

a) 9604 b) 4225 c) 3481 d) 42.25 e) 6.4009 f) 1.96 f) 0.813604

Q2: Express 64 as the sum of 8 odd numbers.

Q3: Express 144 as sum of 12 odd numbers.

Q4: Find Pythagorean triplet whose smallest number is 18.

Q5: Which of the numbers are perfect cubes?

a) 588 b) 900 c) 21952

Q6: what is the unit digit of $(88)^3$

Q7: find the cube root of

a) 74088 b) 12167 c) 857375

Q8: Find square of 0.8

Q9: Find cube of 0.5

Q10: `Find the value of $3\sqrt{125/343}$

LONG ANSWERS

Q1 find the smallest square number divisible by each of number 8,9,10

Q2 By what least number should 7623 be divided to get a perfect square. Find the square number and its square root.

Q3 By what smallest number should be multiply 8799 so that product becoe perfect cube. Find cube root of product.

Q4 What is the smallest number with which 20577 must be divided so that quotient is a perfect cube .

Also find perfect cube.

Q5 A number is multiplied by itself. The product is 5.0625. Find the number.

CHAPTER – LINEAR EQUATION

Application based question

Q1 The perimeter of rectangle is 72m. If length is 10 m more than the breadth. Find dimensions of rectangle.

Q2 The perimeter of rectangle is 50 cm. The length is 5m more than its breadth. Find dimensions of rectangle.

Q3 The sum of the digit of a two digit number is 11. The number obtained by adding 4 to this number is 41 less than the reversed number. Find the original number.

Q4 Anita's mother is 4 times as old as Anita. 20 years later, she will be twice as old as Anita will be then. Find the present age of Anita.

Q5 Two numbers are in ratio 2:3. If the sum of number is175. Find the number.

Q6 The numerator is of fraction is 4 less than denominator. If 1 is added to both Numerator and denominator it becomes $\frac{3}{6}$. Find the fraction.

Q 7 Solve the Equation.

a) 16(3x-5) – 10(4x-8) =40

b) 2(1.5x +2.5) =0.5x +3

c) $\frac{3x+5}{2x+1} = \frac{1}{3}$

d) $\frac{2-(3x-8)}{5-(4x-9)} = \frac{1}{2}$

e) 3(y-5) =6

f) 8x = 20 +3x

g) 2x- $\frac{1}{2}$ =3

h) 2x -7= 5x+8

RATIONAL NUMBERS

DEFINITION: A number which can be expressed in the form of $\frac{p}{q}$ .where p and q are integers and q ≠ 0 **is** called rational number ex 0, 5, 1

Points to Remember

- Rational number are closed under the operations of addition, subtraction, and multiplication
- Rational numbers are commutative and associative for the operation of addition and multiplication.
- Rational number 0 is the Additive Identity
- Rational number 1 is the multiplicative Identity.
- Rational number1 is the multiplicative Identity.
- Rational number $\frac{p}{q}$ and $\frac{-p}{q}$ are additive inverse of each other.
- Rational number $\frac{p}{q}$ and $\frac{q}{p}$ are multiplicative inverse or reciprocal of each other.
- Between any two numbers we can find countless rational number.

VERY SHORT ANSWER

Q1. What is the product of Additive Inverse and Multiplicative inverse of -5?

Q2. What is the sum of Additive Inverse and Multiplicative Inverse of 2?

Q3. Name the Property.

a) a xb =bxa

b) a x (b +c) = (a x b) +(a x c)

Q4. Multiply

a) $\frac{-3}{5}$ x $\frac{15}{8}$ x $\frac{30}{6}$ b) $\frac{8}{11}$ x $\frac{33}{32}$ c) $\frac{-2}{7}$ x $\frac{-14}{11}$

Q5. Verify the following statement and name the property

a) $\frac{16}{7}$X $\frac{-5}{7}$ = $\frac{-5}{7}$ x $\frac{16}{7}$

b) ($\frac{6}{12}$ x $\frac{36}{48}$)x $\frac{2}{11}$ = $\frac{6}{12}$ x ($\frac{36}{48}$ x $\frac{2}{11}$)

c) 1 x $\frac{-15}{4}$ = $\frac{-15}{4}$ x 1 = $\frac{-15}{4}$

d) $\frac{12}{-13}$ X (- $\frac{13}{12}$) = 1

e) $\frac{-2}{5}$ x ($\frac{-4}{11}$ + $\frac{3}{7}$) = $\frac{-2}{5}$ x $\frac{-4}{11}$ + ($\frac{-2}{5}$ x $\frac{3}{7}$)

Q6. Find 5 Rational no between a) -2 and2 b) $\frac{-3}{11}$ and $\frac{-4}{11}$ c) $\frac{-4}{9}$ and $\frac{11}{6}$ d) $\frac{-7}{2}$ and -2

Q 7. The product of two rational number is -12. If one of them is -8 find other.

Q8. Rohit travelled $1\frac{1}{8}$ km from home to school, $\frac{5}{6}$ from school to skating rink, $\frac{2}{3}$ km from skating rink to work and $\frac{5}{16}$ km from work to his home. How many km did Rohit travel?

Q9. Represent the following rational number on Number line

a) $\frac{-5}{11}$ b) $\frac{3}{7}$

Q10. Write four rational number equivalents to

a) $\frac{7}{12}$ b) $\frac{-8}{15}$ c) $\frac{6}{5}$

Q11 . Simplify the using by Suitable Properties.

a) $\frac{5}{12}$ X $\frac{8}{15}$ + $\frac{5}{12}$ x $\frac{2}{3}$

b) $\frac{5}{6}$ X $\frac{-3}{10}$ - $\frac{3}{10}$ x $\frac{2}{3}$

c) ($\frac{5}{7}$ X $\frac{-14}{15}$) + $\frac{-8}{15}$ x $\frac{-3}{-16}$) – ($\frac{-2}{9}$) x ($\frac{-27}{16}$)

d) $\frac{3}{4}$ x ($\frac{-5}{9}$ + $\frac{16}{7}$)

e) $\frac{5}{12}$ X $\frac{1}{40}$ + $\frac{7}{9}$ x $\frac{3}{5}$ + $\frac{7}{9}$ x $\frac{-5}{8}$

Q 12. What should be added to $\frac{-7}{16}$ to get $\frac{13}{20}$?

Q13. Divide the sum of $\frac{-14}{15}$ and $\frac{-7}{9}$ by the product of $\frac{-6}{11}$ and $\frac{5}{12}$

Q14 Who am I?

a) I am the only rational number who does not have any reciprocal.

b) We are two rational number who are additive inverse of each other but not reciprocal of other.

CHAPTER – ALGEBRAIC EXPRESSION

Constant: A symbol having fixed value is called constant. it is denoted numerically. Ex -. I, 2 3.

Variable: A symbol having not a fixed value. It is denoted alphabetically. Ex -- x, y, z

Algebraic Expression: A Combination of constant and variable using mathematical operation (+, - , x, ÷) is called algebraic expression .

Terms: The various part of an Algebraic Expression connected by+ or- sign are called terms of the expression. Ex- 2x +3y -4z – algebraic expression . Here there are three terms 2x , 3y , -4z

Coefficients: The numerical part is called numerical coefficient and literal or variable part is called literal coefficient. Ex. In 24xy, 24 is numerical coefficient and xy is literal coefficient.

Types of Algebraic Expression

- Monomial: An expression having one term is called monomial. Ex. 2x , 5t
- Binomial: An expression having two terms is called binomial. ex. 5t+3 , 7a-5t
- Trinomial: An expression having three terms is called trinomial. 2x-6t-2r

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