



CLASS -IX (MATHEMATICS)

CHAPTER - 1 : NUMBER SYSTEMS WORKSHEET

Q.1:- Find two irrational numbers between: (i) -2 and -1 (ii) 1/5 and 4/5 (iii) 0.15 and 0.3

Q.2:- If x = (sqrt(5)-2)/(sqrt(5)+2) and y = (sqrt(5)+2)/(sqrt(5)-2), then show that x^2 - y^2 = -144*sqrt(5).

Q.3:- If x = (sqrt(2)+1)/(sqrt(2)-1) and y = (sqrt(2)-1)/(sqrt(2)+1), then show that x^2 + y^2 = 34.

Q.4:- If (sqrt(2)-sqrt(3))/(3*sqrt(2)+2*sqrt(3)) = a + b*sqrt(6), then find the value of 'a' and 'b'.

Q.5:- Find two rational and two irrational numbers between -1 and 0.

Q.6:- Find two distinct irrational numbers : (a) Whose sum is rational? (b) Whose product is rational?

Q.7:- Find the value of 'a' and 'b', If (7+sqrt(5))/(7-sqrt(5)) - (7-sqrt(5))/(7+sqrt(5)) = a + (7*sqrt(5)/11) b.

Q.8:- Convert the following in the form of p/q (i) 80.244444..... (ii) 0.767676.....

CASE STUDY BASED QUESTIONS:

Q.9:-Rajan a milkman sells cow milk at the rate of Rs.50 per litre, buffalo milk at the rate of Rs.60 per litre and goat milk at the rate of Rs.70 per litre. The quantity of buffalo milk is equal to square of half of cow milk. He sells goat milk 10 litre daily.

(a) If he sells 'x' litres of cow milk. How much milk does Rajan sell in all?

- (i) (x^2 + 2x + 5) litre (ii) (1/4)x^2 + x litres (iii) (1/4)x^2 + x + 10 litres (iv) (x^2 + 2x + 20) litres

(b) Total cost of milk can be expressed algebraically as.

- (i) Rs.(60x^2 + 50x + 70) (ii) Rs.(15x^2 + 50x + 700) (iii) Rs.(50x^2 + 60x + 70) (iv) Rs.(50x^2 + 15x + 700)

(c) If Rajan sells 25 litres of buffalo milk in a day, then his total quantity of milk sell is.

- (i) 50 litres (ii) 40 litres (iii) 35 litres (iv) 45 litres

(d) If Hari Ram sells 20 litres of cow milk in a day, then his total sale in Rs. is equal to.

- (i) 6700 (ii) 7700 (iii) 8700 (iv) 9700

(e) If he earns Rs.960 by selling buffalo milk, how much does he earn by selling cow milk on that day?

- (i) Rs.400 (ii) Rs.800 (iii) Rs.1600 (iv) Rs.200



Q.10:- A Delhi Public School offers Class - IX students to go on educational trip next weekend. One-fourth of the total students like to visit Art museum, 1/81 of square of remaining students like to go to Botanical gardens, 4/5 of remaining students decide to teach students at an orphanage and rest 4 students want to visit a farm.



(a) If total number of students is x , then number of students going to the orphanage is.

(i) $\frac{4}{5}x$

(ii) $\frac{4}{5} \cdot \frac{1}{4}x$

(iii) $\frac{4}{5} \cdot \frac{3}{4}x^2$

(iv) $\frac{4}{5} \left(\frac{3}{4}x - \frac{1}{144}x^2 \right)$

(b) As per given information, the total number of students as a polynomial in terms of x can be expressed as.

(i) $\frac{1}{4}x + \frac{1}{81} \cdot \frac{3}{4}x + \frac{4}{5}x + 4$ (ii) $\frac{1}{4}x + \frac{1}{81} \cdot \frac{3}{16}x^2 + \frac{4}{5}x + 4$ (iii) $\frac{1}{4}x + \frac{1}{81} \cdot \frac{9}{16}x^2 + \frac{4}{5} \left(\frac{3}{4}x - \frac{1}{144}x^2 \right)$ (iv) $\frac{1}{720}r^2 + \frac{17}{20}r + 4$

(c) The total number of students in the class is.

(i) 24

(ii) 48

(iii) 120

(iv) 30

(d) If 15 students visit art museum, the total number of students in the class is.

(i) 60

(ii) 40

(iii) 30

(iv) 120

(e) If 16 students visit to Botanical garden, how many students visit orphanage?

(i) 12

(ii) 4

(iii) 16

(iv) 20