

ST. Thomas School, Dhurwa, Ranchi-4
Home Assignment For First Term 2020-21
Std. VIII – Mathematics

Chapter : 1 – Rational Numbers [For month April, 2020]

(A) Short Answer Questions.

(i) Evaluate :

(a) $\frac{4}{7} + 0 + \frac{-8}{9} + \frac{-13}{7} + \frac{17}{9}$

(ii) For each pair of rational numbers, verify commutative property of addition of rational numbers :

(a) $\frac{2}{-5}$ and $\frac{11}{-15}$

(iii) The sum of two rational numbers is $\frac{-2}{3}$. If one of them is $\frac{-8}{15}$, find the other.

(iv) Multiply :

(a) $\frac{-7}{8}$ and 4 (b) $\frac{3}{-2}$ and $\frac{-7}{3}$

(v) Evaluate :

(a) $\left(-5 \times \frac{2}{15}\right) - \left(-6 \times \frac{2}{9}\right)$ (b) $\left(\frac{8}{5} \times \frac{-3}{2}\right) + \left(\frac{-3}{10} \times \frac{9}{16}\right)$

(vi) Evaluate :

(a) $\left(2 \times \frac{1}{4}\right) - \left(\frac{-18}{7} \times \frac{-7}{15}\right)$ (b) $\left(\frac{8}{5} \times \frac{-3}{2}\right) + \left(\frac{-3}{10} \times \frac{9}{16}\right)$

(vii) Verify that $x \times (y - z) = x \times y - x \times z$, if

(a) $x = \frac{4}{5}$, $y = -\frac{7}{4}$ and $z = 3$ (b) $x = \frac{3}{4}$, $y = \frac{8}{9}$ and $z = -5$

(viii) The product of two rational numbers is -2. If one of them is $\frac{4}{7}$, find the other.

(B) Medium Answer type Questions.

(i) m and n are two rational numbers such that $m \times n = -\frac{25}{9}$.

(a) if $m = \frac{5}{3}$, find n, (b) if $n = -\frac{10}{9}$, find m.

(ii) Divide the sum of $\frac{5}{8}$ and $-\frac{11}{12}$ by the difference of $\frac{3}{7}$ and $\frac{5}{14}$.

(iii) Represent $-\frac{5}{3}$ and $\frac{4}{3}$, on a number line.

(C) Long Answer Type Questions.

(iv) Evaluate

$$\frac{4}{7} - \frac{-8}{9} - \frac{-13}{7} + \frac{17}{9}$$

(v) Insert six rational numbers between $\frac{5}{6}$ and $\frac{8}{9}$.

Chapter – 2 : Exponents (Power)[For month April, 2020]

(A) Short Answer Type Questions.

(i) Evaluate :

(a) $(5^2 - 3^2) \times \left(\frac{2}{3}\right)^{-3}$

(b) $\left[\left(\frac{1}{4}\right)^{-3} - \left(\frac{1}{3}\right)^{-3} \div \left(\frac{1}{6}\right)^{-3}\right]$

(iii) Evaluate

(iv) $9^0 + 9^{-1} - 9^{-2} + 9^{\frac{1}{2}} - 9^{-\frac{1}{2}}$

(v) Simplify :

$$(x^{a+b})^{a-b} \cdot (x^{b+c})^{b-c} \cdot (x^{c+a})^{c-a}$$

(vi) Prove that :

$$(m + n)^{-1} (m^{-1} + n^{-1}) = (mn)^{-1}$$

(B) Medium Answer Type Questions.

(vi) Find x, if $9 \times 3^x = (27)^{2x-3}$

(vii) Simplify :

(a) $\sqrt[5]{x^{20}y^{-10}z^5} \div \frac{x^3}{y^3}$

(viii) Simplify and express as positive indices :

(a) $(a^{-2}b)^{-2} \cdot (ab)^{-3}$

(C) Long Answer Type Questions.

(i) Show that :

(a) $\left(\frac{x^a}{x^{-b}}\right)^{a-b} \cdot \left(\frac{x^b}{x^{-c}}\right)^{b-c} \cdot \left(\frac{x^c}{x^{-a}}\right)^{c-a} = 1$

(ii) Simplify :

$$(a) \frac{a^{2n+3} \cdot a^{(2n+1)(n+2)}}{(a^3)^{2n+1} \cdot a^{n(2n+1)}} \quad (b) \frac{x^{2n+7} \cdot (x^2)^{3n+2}}{x^{4(2n+3)}}$$

Chapter – 03 : Squares and square roots. [For month April, 2020]

(A) Short Answer Type Questions.

(i) Find the square root of :

(a) $96\frac{1}{25}$

(ii) Evaluate :

(a) $\sqrt{1\frac{4}{5} \times 14\frac{21}{44} \times 2\frac{7}{55}}$

(iii) Evaluate :

(a) $\sqrt{248 + \sqrt{25 + \sqrt{144}}}$

(iv) Find the smallest perfect square divisible by 3, 4, 5 and 6.

(v) If the square of a number ends with 10 zeroes, how many zeroes will the number have ?

(vi) Without doing the actual addition, find the sum of :

(a) $1+3+5+7+9+ \dots + 51 + 53$

(B) Medium Answer Questions.

(vii) If $\sqrt{784} = 28$, find the value of :

(a) $\sqrt{7.84} + \sqrt{78400}$ (b) $\sqrt{0.0784} + \sqrt{0.000784}$

(viii) Find the square root of :

(a) $\sqrt{108 \times 2028}$

(ix) Find the square root of 7 correct to two decimal places; then use it to find the value

of $\sqrt{\frac{4+\sqrt{7}}{4-\sqrt{7}}}$ correct to three significant digit

(C) Long Answer Type Questions.

(x) Find the square of :

(a) 3, correct to three places of decimal.

(b) 0.07688, correct to two places of decimal.

(xi) Find the least number which must be added to 5483 so that the resulting number is a perfect square.

Chapter – 04 : Cubes and Cube – Roots. [For month April - 2020]

(A) Short Answer Type Questions.

(i) Find the cube of :

(a) 42 (b) 54

(ii) Find the cubes of :

(a) 0.12

(iii) Find the cubes of :

(a) -25 (b) -30

(iv) Find the cube-roots of :

(a) 3375×512

(v) Find the cube-roots of :

(a) -64×-125

(B) Medium Answer Type Questions.

(i) With what least number must 8640 be divided so that the quotient is a perfect cube?

(ii) Find the cube-roots of :

(a) -5832

(iii) Find the cube-roots of :

(a) 250.047

(iv) Find the cube-roots of :

(a) -125×1000

(C) Long Answer Type Questions.

(i) Find the smallest number by which 26244 should be divided so that the quotient is a perfect cube ?

(ii) Find the cube-roots of :

(a) 250.047

(A) Short Answer Type Questions.

(i) Evaluate :

(a) 9.3% of 500 – 4.8% of 250 – 2.5% of 240

(ii) Find :

(a) 45 is what percent of 54 ? (b) 2.7 is what percent of 18 ?

(iii) The cost of a scooter depreciates every year by 15% of its value at the beginning of the year. If the present cost of the scooter is Rs. 8,000; find its cost :

(a) after one year (b) after 2 years.

(iv) The number 8,000 is first increased by 20% and then decreased by 20% . Find the resulting number.

(B) Medium Answer Type Questions.

(i) A man bought a certain number of oranges; out of which 13 percent were found rotten. He gave 75% of the remaining in charity and still has 522 oranges left. Find how many had he bought ?

(ii) A's income is 25% more than B's. Find, how much percent B's income is less than A's ?

(iii) Two numbers are respectively 20 percent and 50 percent of a third number. What percent is the second of the first ?

(C) Long Answer Type Questions.

(i) During 2003, the production of a factory decreased by 25% . But, during 2004, it (production) increased by 40% of what it was at the beginning of 2004. Calculate the resulting change (increase or decrease) in production during these two years.

(ii) Last year, oranges were available at Rs. 24 per dozen; but this year, they are available at Rs. 50 per score. Find the percentage change in the price of oranges .
(1score = 20)

(iii) In an election, three candidates contested and secured 29200, 58800 and 72000 votes. Find the percentage of votes scored by the winning candidate.

(iv) The price of sugar is increased by 20% . By what percent must the consumption of sugar be decreased so that the expenditure on sugar may remain the same ?

Chapter – 8 : Profit, Loss & Discount. [For month may - 2020]

(A) Short Answer Type Questions.

- (i) The cost price of an article is $\frac{5}{4}$ times its selling price. Find the loss or the profit as percent.
- (ii) Megha bought 10 note-books for Rs. 40 and sold them at Rs. 4.75 per note-book. Find her gain percent.
- (iii) A man buys a certain number of articles at 15 for Rs. 112.50 and sells them at 12 for Rs. 108.
- (iv) The cost price of an article is $\frac{4}{5}$ times of its selling price. Find the loss or the gain as percent.
- (v) A man sold his bicycle for Rs. 405 losing one-tenth of its cost price. Find :
(a) its cost price; (b) the loss percent
- (vi) Find the cost price, if :
(a) S.P. = Rs. 1,680 and profit = 12% (b) S.P. = Rs. 1,128 and loss = 6%

(B) Medium Answer Type Questions.

- (vii) The cost price of an article is Rs. 2,400 and it is marked at 25% above the cost price. Find the profit and the profit percent, if the article is sold at 15% discount.
- (viii) Ramesh paid Rs. 345.60 as tax on a purchase of Rs. 3,840. Find the rate of tax.
- (ix) John belongs to Delhi. He buys goods, worth Rs. 25,000 from a shop in Delhi. If the rate of GST is 5%, find how much money in all, will John pay for these goods ?
- (x) Some goods/services cost Rs. 16,000 and rate of GST on them is 12%. Find the amount of bill, in case of :
(a) intra-state transaction (b) inter-state transaction.

(C) Long Answer Type Questions.

- (i) A shopkeeper sells an article for Rs. 21,384 including 10% tax. However, the actual rate of Tax is 8%. Find the extra profit made by the dealer.
- (ii) The price of an article is Rs. 8,250 which includes tax at 10%. Find how much more or less does a customer pay for the article, if the tax on the article:
(a) increases to 15% (b) decreases to 6%
(c) increases by 2% (d) decreases by 3%

(iii) For both the following inter-state transaction of services, find the total amount of bill.

(a) Cost of services = Rs. 5,000, discount = 20% and GST = 12%

(b) Cost of services = Rs. 12,500, discount = 40% and GST = 18%

(iv) A dealer in Bihar supplied goods to a dealer in Mumbai. The dealer in Mumbai buys:

(a) 40 articles for Rs. 800 each at 30% discount

(b) 75 articles for Rs. 1,000 each at 20% discount.

If the rate of GST on the whole is 12%, find how much will the dealer at Mumbai pay to dealer in Bihar.

Chapter – 11 : Algebraic Expressions [For month may - 2020]

SHORT QUESTIONS :-

1. Add: $5a+3b$, $a-2b$, $3a+5b$
2. Subtract $6a+3$ from a^3-3a^2+4a+1
3. Multiply $5x^2-8xy+6y^2-3$ by $-3xy$
4. Divide $8x-10y+6c$ by 2

MEDIUM QUESTIONS:-

1. The product of two numbers is $6x^4-1$. If one of the number is $2x-1$, find the other number.
2. Multiply $-4xy^3$ and $6x^2y$ and verify your result for $x=2$ and $y=1$.
3. Find the quotient and the remainder when $2x^3-8x^2+5x-8$ is divided by $x-2$.

LONG QUESTIONS

1. Simplify :- $5y \times [6y \div 3 + \{4 - (3y - 2y - 4)\}]$
2. The adjacent sides of a rectangle are $x^2-4xy+7y^2$ and x^3-5xy^2 . Find its area.
3. The perimeter of a triangle is $15x^2-23x+9$ and two of its sides are $5x^2+8x-1$ and $6x^2-9x+4$. Find the third side.

Chapter – 16 : Understanding Shapes [For month may - 2020]

SHORT QUESTIONS :-

1. Calculate the sum of angles of a polygon with 12 sides.
2. Find the number of sides in a polygon if the sum of its interior angles is 1620° .
3. Two angles of a quadrilateral are 68° and 76° . If the other two angles are in ratio 5:7 , find the measure of each of them.
4. Is it possible to have a regular polygon with each interior angle equal to 105° .

MEDIUM QUESTIONS :-

1. The interior angles of a pentagon are in the ratio 4:5:6:7:5 , find each angle of the pentagon
2. Calculate the number of sides of a regular polygon if its exterior angle exceeds its interior angle by 60° .
3. Angles of a quadrilateral are $(4x)^\circ$, $5(x+2)^\circ$, $(7x-20)^\circ$ and $6(x+3)^\circ$. Find the value of x and each angle of quadrilateral.

LONG QUESTIONS:-

1. The measure of each interior angle of a regular polygon is five times the measure of its exterior angle. Find
 - (i) measure of each interior angle
 - (ii) measure of each exterior angle
 - (iii) number of sides of in the polygon
2. Two angles of a polygon are right angles and the remaining are 120° each. Find the number of sides in it.
3. If the difference between the exterior angle of a n-sided polygon and (n+1) sided polygon is 12° , Find the value of n.

Chapter – 17 : Special Types Of Quadrilaterals [For month june - 2020]

SHORT QUESTIONS :-

1. In parallelogram ABCD , if $AB = 5x-7$, and $CD = 3x+1$; find the value of CD.
2. In square PQRS , if $PR = 5x$, $QS = 9x-8$, Find QS.
3. In rhombus ABCD , $\angle Q = (X-5)^\circ$ and $\angle S = (3x+10)^\circ$, Calculate $\angle Q$ and $\angle R$.
4. In parallelogram PQRS, $\angle P = 3$ times of $\angle Q$, Find all the angles of a parallelogram.

MEDIUM QUESTIONS :-

1. Prove that the diagonals of a parallelogram bisect each other.
2. The adjacent sides of a parallelogram are in the ratio 5:3. If its perimeter is 96cm , find the sides of the parallelogram.
3. One of the diagonals of a rhombus is equal to its sides . Find the angles of the rhombus.

LONG QUESTIONS:-

1. In parallelogram ABCD , the bisectors of adjacent angles A and D intersect each other at point P . Prove that $\angle APD = 90^\circ$.
2. In parallelogram ABCD , E is the mid point of sides AB and CE bisects angle BCD . Prove that :
 - (i) $AE = AD$
 - (ii) DE bisects $\angle ADC$ and
 - (iii) Angle DEC is a right angle.
3. In a parallelogram PQRS , X and Y are points on diagonal QS such that $SX=QY$. Prove that PXYR is a parallelogram.

Chapter – 20 : Area Of a Trapezium and a Polygon [For month june - 2020]

SHORT QUESTIONS :-

1. Find the area of a triangle ; whose sides are 10cm, 24cm, and 26cm
2. The diagonal of a rectangle is 34cm . If its breadth is 16cm ; find its area.
3. The length of the diagonals of a rhombus is in the ratio 4:3. If its area is 384cm^2 , find its side.
4. Find radius and area of a circle whose circumference is 132cm.

MEDIUM QUESTIONS :-

1. A path of uniform width 2m runs around the inside of a square field 20m. Find the area of the path.
2. The area of an equilateral triangle is $144\sqrt{3}\text{ cm}^2$; find its perimeter.
3. A wire, when bent in the form of a square , encloses an area of 196cm^2 . If the same wire is bent to form a circle; find the area of the circle.

LONG QUESTIONS

1. The length and breadth of a rectangular field are in the ratio 5:4 and its area is 3380m^2 . Find the cost of fencing it at the rate of Rs. 75 per m.
2. A bicycle wheel of diameter 56cm, is making 45 revolution in every 10 seconds . Calculate the speed , in Kilometer per hour , of the bicycle.
3. The radii of the inner and outer circumferences of a circular running track are 63m and 70m respectively. Find :
 - (i) The area of the track
 - (ii) The difference between the lengths of the two circumferences of the track.

Chapter – 22 : Data Handling [For month july - 2020]

SHORT QUESTIONS :-

1. Arrange the following data as an array (in ascending order) :
6.3, 5.9, 9.8, 12.3, 5.6, 4.7, 8.8, 9.9, 4.9, 6.4
2. Construct a frequency table for the following data :
6, 5, 7, 6, 8, 9, 5, 5, 6, 7, 8, 9, 8, 10, 10, 9, 8, 10, 5, 7, 6, 8 .
3. Fill in the blanks :
 - (i) Lower class limit of 15 – 18 is _____ .
 - (ii) Upper class limit of 24 – 30 is _____ .
 - (iii) If the upper and the lower limits of class interval are 16 and 10 , the class interval is _____ .

MEDIUM QUESTIONS :-

1. Hundred students from a certain locality use different modes of travelling to school as given below. Draw a bar graph .

Bus	Car	Rickshaw	Bicycle	Walk
32	16	24	20	8

2. The following table shows the market position of different brands of tea leaves .
Draw a Pie- chart to represent the below information :

Brands	A	B	C	D	Others
% Buyers	35	20	20	15	10

LONG QUESTIONS

1. For the following table , draw a bar graph

A	B	C	D	E	F
230	400	350	200	380	160

2. The following table shows the mode of transport used by boys and girls for going to the same school . Draw a double bar graph representing the below data :

	Bus	Bicycle	Walking	Othersources
No. of boys	80	60	20	85
No. of girls	90	75	35	60