

MATHEMATICS

Class-VI

Topic-06

DECIMALS



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TERMINOLOGIES

Decimals, decimal places, like and unlike decimals, expanded notation.

INTRODUCTION

We have learnt earlier that the place value of a digit increases ten times as it moves one step towards left e.g.,

the place value of 6 in 5216 is 6 units or 6

the place value of 6 in 8364 is 6 tens or 60

the place value of 6 in 3657 is 6 hundreds or 600.

What happens to the place value of a digit when it moves one step towards right ?

The place value of a digit becomes $\frac{1}{10}$ (one-tenth) when it moves a step towards the right.

So, One hundred = $\frac{1}{10}$ of one thousand

One ten = $\frac{1}{10}$ of one hundred

One unit = $\frac{1}{10}$ of one ten

6.1 DECIMALS

Decimals : Decimals are an extension of our number system. Decimals are fractions whose denominators are 10, 100, 1000 etc. A decimal has two parts, namely, the whole number part and decimal part.

Decimal Places : The number of digits contained in the decimal part of a decimal number is known as the number of **decimal places**.

For example :

3.75 has two decimal places and 85.325 has three decimal places.

Like and unlike decimals : Decimals having the same number of decimal places are called like decimals, otherwise they are known as unlike decimals.

For example :

5.25, 15.04, 273.89 are like decimals and 9.5, 18.235, 20.0254 etc. are unlike decimals.

NOTE:

We have, $0.1 = 0.10 = 0.100$ etc., $0.5 = 0.50 = 0.500$ etc. and so on. That is by annexing zeros on the right side of the extreme right digit of the decimal part of a number does not alter the value of the number. Unlike decimals may be converted into like decimals by annexing the requisite number of zeros on the right side of the extreme right digit in the decimal part.

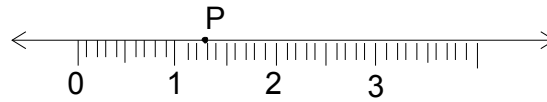
(a) Representation of Decimals on Number line

We have learnt the representation of whole numbers and fractions on a number line. Now we shall explain the method of representing decimal numbers on number line

Let us represent 1.3 on a number line

1.3 is more than 1 and less than 2

1.3 is $1 + 0.3$, i.e $1 + 3$ tenths



Draw a number line and mark whole numbers 0,1,2,3,..... on it.

Divide the portion between 1 and 2 into 10 equal parts and take 3 parts for 3 tenths or 0.3

Mark it as P. In the above figure P represents the number 1.3.

(b) Division of a unit in ten equal parts

If an object is divided into 10 equal parts then its each part is one tenth of the whole. It is written as $\frac{1}{10}$.

$\frac{1}{10}$ is also written as 0.1 and is read as 'one tenth' or 'decimal one or point one'.

thus 1 ones = 10 tenth

Ex. 0.5 is read as 5 tenth.

(c) Division of a unit in hundred equal parts

If an object is divided into 100 equal parts then its each part is one hundredth of the whole.

It is written as $\frac{1}{100}$.

$\frac{1}{100}$ is also written as 0.01 and is read as 'one hundredth' or 'decimal zero one' or zero point zero one'.

(d) Division of a unit in thousand equal parts

If an object is divided into 1000 equal parts then its each part is one thousandth of the whole. It is written as $\frac{1}{1000}$.

$\frac{1}{1000}$ is also written as 0.001 and is read as 'one thousandth' or 'decimal zero zero one' or zero point zero zero one'.

Illustration 6.1

Mark the following decimals in place value table :

- (a) 0.3 (b) 19.4 (c) 205.9

Sol. Place Value Table

Number	Hundreds	Tens	Ones	Decimal	Tenths
0.3			0	.	3
19.4		1	9	.	4
205.9	2	0	5	.	9

Illustration 6.2

Write the following in decimal notation:

(a) Eight tenths (b) Eight and 3 tenths (c) $17 \frac{1}{10}$

(d) $\frac{3}{5}$ (e) $5 \frac{1}{2}$

Sol. (a) 0.8 (b) 8.3 (c) 17.1
 (d) $\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10} = 0.6$ (e) $5 \frac{1}{2} = 5 + \frac{1 \times 5}{2 \times 5} = 5 + \frac{5}{10} = 5.5$

Illustration 6.3

Write the following in decimal fractions :

(a) 0.8 (b) 1.3

Sol. (a) $0.8 = 8 \text{ tenths} = \frac{8}{10}$
 (b) $1.3 = 1 + 3 \text{ tenths} = 1 + \frac{3}{10} = 1 \frac{3}{10}$

Illustration 6.4 Write the following decimals in words:

(a) 0.03 (b) 17.38 (c) 10.07 (d) 5.008

Sol. (a) Zero point zero three (b) Seventeen point three eight
 (c) Ten point zero seven (d) Five point zero zero eight

Illustration 6.5

Place values of digits of numbers are given below. Write them in decimal form:

- (a) 3 tenths, 5 ones, 2 tens, 9 hundredths
 (b) 2 hundredths, 3 thousandths, 2 ones
 (c) 6 ones, 3 hundreds, 9 tenths, 5 hundredths, 1 thousandth

Sol.

Hundreds	Tens	Ones	Decimal	Tenths 1/10	Hundredths 1/100	Thousandths 1/1000	Number
	2	5	.	3	9		25.39
		2	.	0	2	3	2.023
3	0	6	.	9	5	1	306.951

(e) Expanded notation for decimal numbers

Let us study the following examples :

(a) $14.5 = 10 + 4 + \frac{5}{10} = 10 + 4 + 0.5$
 (b) $49.08 = 40 + 9 + \frac{0}{10} + \frac{8}{100} = 40 + 9 + 0.08$

In the above example 14.5 & 49.08 have been written in the expanded form.

Illustration 6.6

Write in the expanded form :

(a) 35.63 (b) 5.003

Sol. (a) 35.63

$$30 + 5 + \frac{6}{10} + \frac{3}{100} = 30 + 5 + 0.6 + 0.03$$

(b) 5.003

$$5 + \frac{0}{10} + \frac{0}{100} + \frac{3}{1000} = 5 + 0.003$$

Illustration 6.7

Write in decimal :

(a) $200 + 30 + 5 + \frac{7}{100}$ (b) $6 + \frac{7}{10} + \frac{5}{100}$

Sol. (a) 235.07 (b) 6.75

(f) Conversion

(i) Changing a Decimal Numeral to a Common Fraction : To change a decimal numeral to a common fraction, express the decimal as a fraction with denominator 10 or power of 10 and then reduce it to its lowest terms.

For example :

(a) $0.75 = \frac{75}{100} = \frac{3}{4}$ (b) $0.125 = \frac{125}{1000} = \frac{1}{8}$

Note : Any number of zeros may be put to the extreme right of the decimal part of a decimal.

Illustration 6.8

Write the following as fractions. Reduce them to lowest terms :

(a) 1.0 (b) 3.8 (c) 21.2

Sol. (a) $1.0 = 1$ (b) $3.8 = 3\frac{8}{10} = 3\frac{4}{5}$ (c) $21.2 = 21\frac{2}{10} = 21\frac{1}{5}$

Illustration 6.9

Write as fraction in lowest terms :

(a) 17.05 (b) 6.32 (c) 45.25

Sol. (a) $17.05 = 17\frac{5}{100} = 17\frac{1}{20}$ (b) $6.32 = 6\frac{32}{100} = 6\frac{8}{25}$

(c) $45.25 = 45\frac{25}{100} = 45\frac{1}{4}$

(ii) Changing a Common Fraction to a Decimal Numeral

Type 1. Fraction whose denominators are powers of 10.

Method : Divide the numerator by the denominator and write the quotient in decimal form.

Illustration 6.10

(i) $\frac{59}{100} = .59 = 0.59$ (ii) $\frac{39}{10000} = 0.0039$

Sol. (i) 2 zeros
2 decimal places
(ii) 4 zeros
4 decimal places

Illustration 6.11

For example :

(a) $\frac{21}{8}$

(b) $2\frac{3}{8}$

$$\begin{array}{r} 2.625 \\ 8 \overline{) 21.000} \\ \underline{16} \\ 50 \\ \underline{48} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

$$\begin{array}{r} .375 \\ 8 \overline{) 3.000} \\ \underline{24} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

Sol.

(a)

$$\begin{array}{r} 2.625 \\ 8 \overline{) 21.000} \\ \underline{16} \\ 50 \\ \underline{48} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

(b)

$$\begin{array}{r} .375 \\ 8 \overline{) 3.000} \\ \underline{24} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

(iii) Conversion of Unlike decimals into Like decimals

Let us consider unlike decimals 0.5 and 0.31.

The number of decimals places in 0.5 is 1.

The number of decimals places in 0.31 is 2.

To convert 0.5 and 0.31 into like decimals, we should have two decimal places in 0.5. To convert 0.5 into an equivalent decimal number, we add as many zeros to the right of 5 as we please. So the number which is equivalent to 0.5 and has two decimal places will be 0.50.

This 0.50 and 0.31 are like decimals.

Unlike decimals	Like decimals
(a) 4.08, 3.1	4.08, 3.10
(b) 6.25, 0.309	6.250, 0.309
(c) 9.8, 3.29, 0.605	9.800, 3.290, 0.605

Ask yourself _____



1. Express

- (a) 75 paise as rupees (b) 54 rupees 8 paise as rupees
 (c) 348 kg 36 g as kg

2. Write as fraction in their lowest terms :

- (a) 0.07 (b) 24.075 (c) 0.625

3. Change to decimals :

- (a) $\frac{5}{8}$ (b) $\frac{17}{40}$ (c) $5\frac{13}{64}$ (d) $4\frac{31}{80}$

4. Write in decimal notation :

- (a) Thirty three hundredths
 (b) Five hundred eighty three thousandths
 (c) Nineteen hundred thousandths
 (d) Twenty eight and seventeen ten thousandths

5. Represent the following on number line :

- (a) 4.5 (b) 2.8 (c) 6.1

6. Write the following in the standard form as decimals. Also write them in words in both the ways.

(a) $400 + 20 + 3 + \frac{4}{10} + \frac{0}{1000} + \frac{3}{100}$

(b) $7000 + 0 + 10 + 3 + \frac{0}{10} + \frac{9}{100} + \frac{5}{1000}$

Answers

1. (a) Rs 0.75 (b) Rs 54.08 (c) 348.036 kg

2. (a) $\frac{7}{100}$ (b) $\frac{963}{40}$ (c) $\frac{5}{8}$

3. (a) 0.625 (b) 0.425 (c) 5.203125 (d) 4.3875

4. (a) 0.33 (b) 0.583 (c) 1.9 (d) 28.0017

6. (a) 423.403 (b) 7013.095

6.2 COMPARISON OF DECIMALS

Decimal numbers may be compared by using the following steps :

Step I Obtain the decimal numbers.

Step II Compare the whole number parts of the numbers. The number with greater whole number part will be greater. If the whole number parts are equal, go to next step.

Step III Compare the extreme left digits of the decimal parts of two numbers. The number with greater extreme left digit will be greater. If the extreme left digits of decimal parts are equal, then compare the next digits and so on.

Illustration 6.12

Which is greater of 48.23 and 39.35 ?

Sol. The given decimals have distinct whole number parts, so we compare whole number parts only.

In 48.23, the whole number part is 48.

In 39.35, the whole number part is 39.

$$\therefore 48 > 39$$

$$\therefore 48.23 > 39.35$$

Illustration 6.13

Which is greater of 69.7 and 69.68 ?

Sol. The given decimals have same whole number parts, so we will compare the decimal parts.

In 69.7 decimal parts is 0.7

In 69.68 decimal part is 0.68

\therefore Extreme left digit of 0.7 is 7 and that of 0.68 is 6.

$$\therefore 69.7 > 69.68$$

Illustration 6.14

Write the following decimals in ascending order :

5.64, 2.54, 3.05, 0.259 and 8.32

Sol. Converting the given decimals into like decimals, we get :

5.640, 2.540, 3.050, 0.259 and 8.320

Clearly, $0.259 < 2.540 < 3.050 < 5.640 < 8.320$

Hence, the given decimals in the ascending order are

0.259, 2.54, 3.05, 5.64 and 8.32.



Ask yourself

- Compare the following decimal numbers and put $>$ or $<$ in the blank :
 - 5.91 _____ 5.89
 - 23.175 _____ 23.201
 - 2.9387 _____ 3
 - 805.0098 _____ 805.0093
- Rearrange these decimal numbers in descending order :
 - $3.93, 4.61, 3.07, 3.47, 4.16$
 - $0.1007, 0.0071, 0.0107, 0.0710, 0.0171$
- Put these numbers in order of size, smallest first :
 $3.3, 3.03, 0.333, 0.03, 0.303, 3.003$
- Put these number in order of size, Starting with largest
 $0.786, 0.706, 0.760, 0.768, 0.756$
- The heights of Kashish, Varsha and Simran are 1.45 m, 146cm and 1400mm respectively. Who is tallest of them all ?

Answers

- (a) $5.91 > 5.89$ (b) $23.175 < 23.201$ (c) $2.9387 < 3$ (d) $805.0098 > 805.0093$
- (a) $4.61 > 4.16 > 3.93 > 3.47 > 3.07$ (b) $0.1007 > 0.0710 > 0.0171 > 0.0107 > 0.0071$
- $0.03 < 0.303 < 0.333 < 3.003 < 3.03 < 3.3$
- $0.786 > 0.768 > 0.760 > 0.756 > 0.706$ 5. Varsha is tallest

6.3 OPERATIONS ON DECIMAL

(a) Addition and Subtraction Of Decimals

Decimals can be added or subtracted by using the following steps:

Step I Convert the given decimals to like decimals.

Step II Write the decimals in columns with their decimal points directly below each other so that tenths come under tenths, hundredths come under hundredths and so on.

Step III Add or subtract as we add or subtract whole numbers.

Step IV Place the decimal point, in the answer, directly below the other decimal points.

Illustration 6.15

Add 15.44, 7.524 and 25.

Sol. Converting the given decimals to like decimals, we have 15.440, 7.524 and 25.000.

Now,

$$\begin{array}{r} 15.440 \\ + 7.524 \\ + 25.000 \\ \hline 47.964 \end{array}$$

Illustration 6.16

Aakash bought vegetables weighing 10 kg. Out of this 3 kg 500 g is onion, 2 kg 75 g is tomato and the rest is potato. What is the weight of potato?

Sol. We have,

Weight of onion = 3 kg 500g = 3.500 kg

Weight of tomato = 2 kg 75g = 2.075 kg

$$\begin{array}{r}
 \therefore \text{Total weight of onion and tomato is :} \\
 3.500 \text{ kg} \\
 + 2.075 \text{ kg} \\
 \hline
 5.575 \text{ kg}
 \end{array}$$

Total weight of vegetables = 10 kg

Weight of potato is = 10 kg – 5.575 kg = 4.425 kg

Illustration 6.17

Amit bought a Maths book for Rs. 45.60 and a geometry box for Rs. 62.55. What is the total amount spent by Amit ?

Sol. Money spent on Maths book = Rs. 45.60
 Money spent on Geometry box = Rs. 62.55

$$\begin{array}{r}
 \therefore \text{Total amount spent} \quad 45.60 \\
 = \text{Rs. } 45.60 + \text{Rs. } 62.55 \quad + 62.55 \\
 = \text{Rs. } 108.15 \quad \quad \quad \underline{108.15}
 \end{array}$$

Illustration 6.18

Priya travelled 8 km 95 m in the first hour, 6 km 298 m in the second hour and 7 km 9m in the third hour. Find the total distance travelled by her in three hours.

Sol. Distance travelled in first hour = 8 km 95 m = 8.095 km
 Distance travelled in second hour = 6km 298 m = 6.298 km
 Distance travelled in third hour = 7 km 9 m = 7.009 km

$$\begin{array}{r}
 \therefore \text{Total distance travelled in 3 hours} \quad 8.095 \\
 = 8.095 \text{ km} + 6.298 \text{ km} \quad \quad \quad 6.298 \\
 + 7.009 \text{ km} \quad \quad \quad \underline{+ 7.009} \\
 = 21.402 \text{ km} \quad \quad \quad \underline{21.402}
 \end{array}$$

Illustration 6.19

An empty box weighs 1 kg 240 g. When filled with oranges it weighs 19 kg 70 g. What is the weight of the oranges ?

Sol. Weight of empty box = 1 kg 240 g = 1.240 kg
 Weight of box with oranges = 19 kg 70 g = 19.070 kg

$$\begin{array}{r}
 \therefore \text{Weight of oranges} \quad 19.070 \\
 = 19.070 \text{ kg} - 1.240 \text{ kg} \quad \quad \quad \underline{-1.240} \\
 = 17.830 \text{ kg.} \quad \quad \quad \underline{17.830}
 \end{array}$$

Illustration 6.20

A can hold 12.5 litres of mixed fruit juice. 4.035 litres of apple juice and 6 litres 15 ml of orange juice have been poured in the can. What would be the amount of grape juice that can still be added in the can?

Sol. Amount of apple juice = 4.035 L
 Amount of orange juice = 6 litres 15 mL = 6.015 L
 Capacity of can = 12.5 L

$$\begin{array}{r}
 \therefore \text{Reqd. amount of grape juice} \quad 12.500 \\
 = 12.5 \text{ L} - (4.035 + 6.015) \text{ L} \quad \quad \quad \underline{-10.050} \\
 = 12.5 \text{ L} - 10.050 \text{ L} = 2.45 \text{ L} \quad \quad \quad \underline{2.450}
 \end{array}$$

Illustration 6.21

Subtract the difference of 15.13 and 9.7 from their sum.

Sol. Sum = $15.13 + 9.7 = 24.83$
 Difference = $15.13 - 9.7 = 5.43$
 \therefore Sum – Difference = $24.83 - 5.43 = 19.40$

$\begin{array}{r} 15.13 \\ + 9.70 \\ \hline 24.83 \end{array}$	$\begin{array}{r} 15.13 \\ - 9.70 \\ \hline 5.43 \end{array}$
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Illustration 6.22

Sundaram bought a toothpaste for Rs. 18.75, soap for Rs. 6 and shoe polish for Rs. 12.50 . He gave a fifty rupees note to the shopkeeper. Find the money he got back.

Sol. Cost of the toothpaste = Rs. 18.75
 cost of the soap = Rs. 6.00
 Cost of the shoe polish = + Rs. 12.50
 Total expenditure = Rs. 37.25
 Money he got back = Rs. 50 – Rs. 37.25
 Rs. 50.00
 Rs. 37.25 = Rs. 12.75

Illustration 6.23

The height of Som is 1.25 m and that of Reena is 1.3 m . Who is taller and by how much ?

Sol. Difference in height = 1.30
 $= 1.30 \text{ m} - 1.25 \text{ m} = \underline{0.05}$
 $= 0.05 \text{ m} = 5 \text{ cm}$
 Thus, Reena is taller by 0.05 m i.e., 5 cm than Som.

(b) Multiplication Of Decimals

(i) Multiplication of Decimals by 10, 100, 1000 etc.:

In order to multiply a decimal by 10, 100, 1000 etc., we use the following rules :

Rule I On multiplying a decimal by 10, the decimal point is shifted to the right by one place.

Rule II On multiplying a decimal by 100, the decimal point is shifted to the right by two places.

Rule III On multiplying a decimal by 1000, the decimal point is shifted to the right by three places and so on.

Illustration 6.24

Find the following products :

(a) 27.05×10 (b) 429.7×100

Sol. We have,

(a) $27.05 \times 10 = 270.5$ [Shifting the decimal point by one place to the right]

(b) $429.7 \times 100 = 429.70 \times 100 = 42970$
 [Shifting the decimal point by two places to the right]

(ii) Multiplication of a decimal by a whole number:

A decimal can be multiplied by a whole number by using the following steps :

Step I Multiply the decimal without the decimal point by the given whole number.

Step II Mark the decimal point in the product to have as many places of decimal as there are in the given decimal.

Illustration 6.25

Find the product of 0.0275×17 .

Sol. We have,

$$275 \times 17 = 4675$$

$$\therefore 0.0275 \times 17 = 0.4675$$

(iii) Multiplication of a decimal by another decimal:

To multiply a decimal by another decimal, we follow following steps :

Step I Multiply the two decimals without decimal point just like whole numbers.

Step II Insert the decimal point in the product by counting as many places from the right to left as the sum of the number of decimal places of the given decimals.

Illustration 6.26

Find the product of 9.2 and 6.07.

Sol. We have,

$$\begin{array}{r} 92 \\ \times 607 \\ \hline 644 \\ 000 \\ + 55200 \\ \hline 55844 \end{array}$$

$$\therefore 92 \times 607 = 55844$$

Since the sum of the decimal places in the given decimals is $1 + 2 = 3$.

So, the product must contain 3 places of decimals. Hence $9.2 \times 6.07 = 55.844$

Illustration 6.27

Multiply 0.0345 by 0.0237

Sol. We have,

$$\begin{array}{r} 345 \\ \times 237 \\ \hline 2415 \\ 10350 \\ + 69000 \\ \hline 81765 \end{array}$$

$$\therefore 345 \times 237 = 81765$$

We observe that the sum of the decimals in the given decimals is $4 + 4 = 8$

So, the product must contain 8 places of decimals.

Hence, $0.0345 \times 0.0237 = 0.00081765$



Ask yourself _____

1. Add :

(a) 7.42, 2.59	(b) 0.017, 0.032	(c) 5.37, 2.51, 4.41, 1.03
(d) 5327.134, 315.23, 53.036, 27		

2. Subtract :

(a) 7.23 from 9.75	(b) 5.158 from 7.9	(c) 1.0453 from 3.81
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3. Simplify :

(a) $6 - 0.4 - 0.87 - 0.03$	(b) $31.53 - 9.84 - 6.86 - 12.08$
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4. Multiply :

(a) 8.37×10	(b) 49.87×100	(c) 0.00805×100
(d) 0.9×0.4	(e) 150×0.007	(f) 5.9×2.3
(g) 5.78×3	(h) 1.8×18	

5. The bill for three meals was Rs 298.37 . The first meal cost Rs 83.59 and second Rs 95.08. What was the cost of the third ?

6. Raju bought a book for Rs. 46.50, he gave Rs100 to the shopkeeper . How much will he get back from the shopkeeper ?

Answers

1. (a) 10.01 (b) 0.049 (c) 13.32 (d) 57224
2. (a) 2.52 (b) 2.742 (c) 2.7647
3. (a) 4.7 (b) 2.75
4. (a) 83.7 (b) 4987 (c) 0.805 (d) 0.36 (e) 1.05 (f) 13.57
 (g) 17.34 (h) 32.4
5. Rs. 119.7 6. Rs. 53.5



Add your knowledge _____

Division Of Decimals

(i) **Dividing a decimal by 10, 100, 1000 etc. :**

A decimal, can be divided by 10, 100, 1000 etc. by using the following rules :

Rule I When a decimal is divided by 10, the decimal point is shifted to the left by one place.

Rule II When a decimal is divided by 100, the decimal point is shifted to the left by two places.

Rule III When a decimal is divided by 1000, the decimal point is shifted to the left by three places.

Eg 1 : Divide

(i) 12.75 by 10 (ii) 1275.7 by 1000

Sol. (i) $12.75 \div 10 = \frac{12.75}{10} = 1.275$ [Shifting decimal point to the left by 1 place]

(ii) $1275.7 \div 1000 = \frac{1275.7}{1000} = 1.2757$ [Shifting decimal point to the left by 3 place]

(ii) **Dividing a decimal by whole number**

A decimal can be divided by a whole number by using the following steps :

Step I Check the whole number part of the dividend.

Step II If the whole number part of the dividend is less than the divisor, then place a '0' in the ones place in the quotient, other wise, go to step iii.

Step III Divide the whole number part of the dividend.

Step IV Place the decimal point to the right of ones place in the quotient obtained in step I.

Step V Divide the decimal part of the dividend by the divisor. If the digits of the dividend are exhausted, then place zeros to the right of dividend and remainder each time and continue the process.

Eg 2 : Divide 93.45 by 15.

Sol. We have,

$$\begin{array}{r}
 15 \overline{) 93.45} \quad (6.23 \\
 \underline{- 90} \\
 34 \\
 \underline{- 30} \\
 45 \\
 \underline{- 45} \\
 0
 \end{array}$$

$\therefore 93.45 \div 15 = 6.23$

Eg 3 : Divide 0.6204 by 5

Sol. We have,

$$\begin{array}{r}
 5 \overline{) 0.62040} \quad (0.12408 \\
 \underline{0} \\
 6 \\
 \underline{- 5} \\
 12 \\
 \underline{- 10} \\
 20 \\
 \underline{- 20} \\
 40 \\
 \underline{- 40} \\
 0
 \end{array}$$

Thus, $0.6204 \div 5 = 0.12408$.

(iii) Dividing a decimal by a decimal :

A decimal can be divided by a decimal by using the following steps :

Step I Multiply the dividend and divisor by 10 or 100 or 1000 etc. to convert the divisor into a whole number.

Step II Divide the new dividend by the whole number obtained in step I.

Eg 4 : Divide 0.00942 by 0.314

Sol. We have,

$$\begin{array}{r} 314 \overline{) 9.42} \quad (0.03 \\ \underline{0} \\ 942 \\ \underline{-942} \\ 0 \end{array}$$

$$\frac{0.00942}{0.314} = \frac{0.00942 \times 1000}{0.314 \times 1000} = \frac{9.42}{314}$$

Hence, $0.00942 \div 0.314 = 0.03$

Eg 5 : Divide 0.0024 by 0.04

Sol. We have,

$$\frac{0.0024}{0.04} = \frac{0.0024 \times 100}{0.04 \times 100} = \frac{0.24}{4}$$

$$\begin{array}{r} 4 \overline{) 0.24} \quad (0.06 \\ \underline{0} \\ 24 \\ \underline{-24} \\ 0 \end{array}$$

Hence, $0.0024 \div 0.04 = 0.06$

Eg 6 : The product of two decimals is 1.5008 . If one of them is 0.56, find the other.

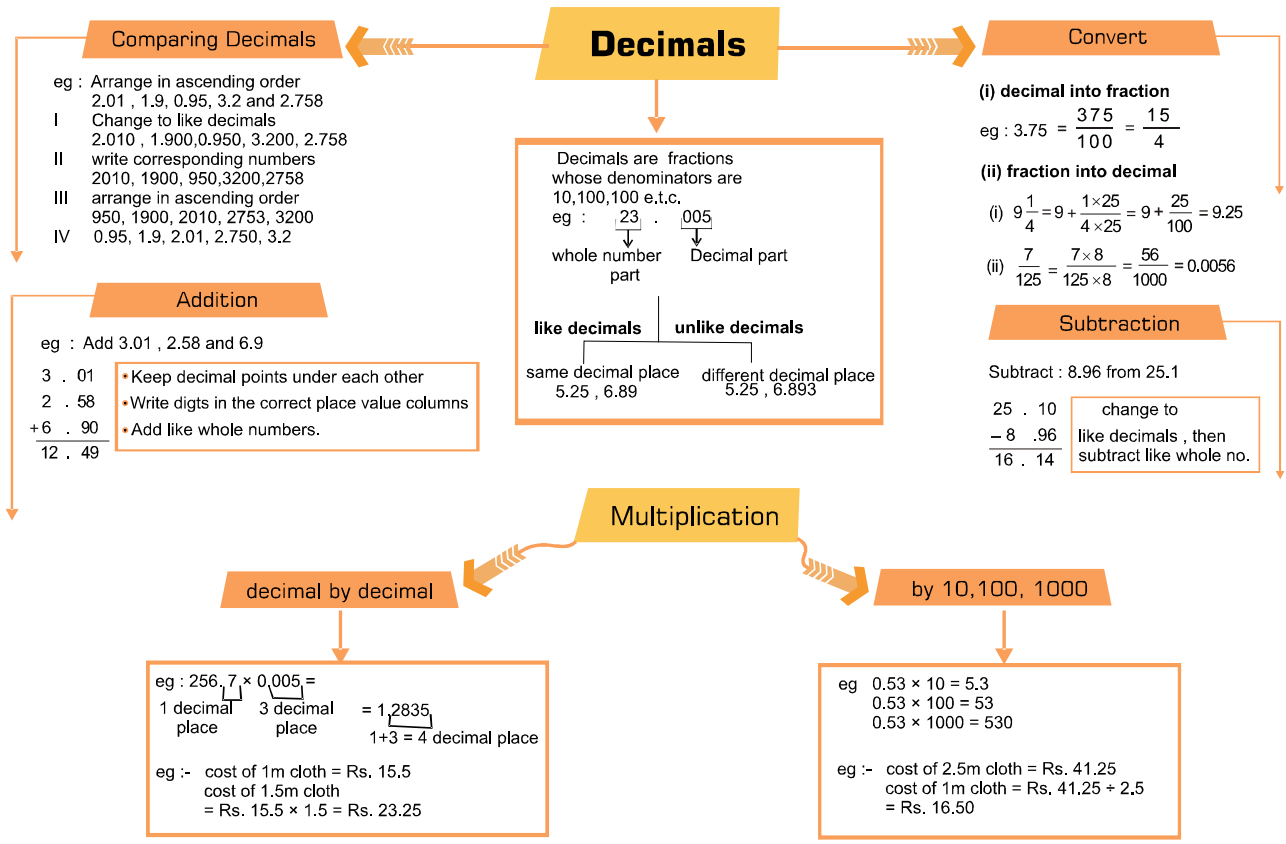
Sol. Product of given decimals = 1.5008.

One decimal = 0.56.

$$\text{The other decimal} = 1.5008 \div 0.56 = \left(\frac{1.5008}{0.56} \times \frac{100}{100} \right) = \frac{150.08}{56} = 2.68.$$

Hence, the other decimal is 2.68.

Concept Map



Summary

1. The fractions whose denominators are 10,100, 1000 etc . are called decimal fractions .
2. A decimal consists of two parts - the whole part and a decimal part.
68. 95
68 is the whole part and 95 is the decimal part
3. Adding zeros to the extreme right of the fractional part of the decimal number does not affect the value of the decimal number.
e.g. 7.64 = 7.640 = 7.6400 = 7.6400 etc.
4. If a block is divided into 100 equal parts then each equal part represent $\frac{1}{100}$ (one hundredth) of a unit. It is written as 0.01 in decimal form.
5. All decimals can be represented on number line.
6. Decimals are used to represent units of money, length and weight.
7. When adding or subtracting decimal numbers always line up the decimal points.
8. (i) To multiply a decimal by 10, 100, 100 etc .., move the decimal points 1,2,3 ... places respectively to the right.
(ii) To multiply decimals by decimals
 - (a) Multiply as with whole numbers.
 - (b) Find the total number of decimal places in both the multiplicand and the multiplier.
 - (c) Count off from the right, the product, the total number of decimal places and place the decimal point . If necessary, insert the required number of zeros.
9. (i) **To divide a decimal by 10, 100, 1000, etc.** move the decimal point 1,2,3.. places respectively to the left.

(ii) **To divide a decimal number by a whole number**, put the decimal point in the quotient directly above the decimal point in the dividend . divide as with whole numbers.

(iii) **To divide a decimal by a decimal** : Multiply the divisor and the dividend by the same power of 10 so that the divisor becomes a whole number, then perform a long division, remembering to line up the decimal points .

EXERCISE

01

SECTION -A (FIXED RESPONSE TYPE)

MULTIPLE CHOICE QUESTIONS

1. $1.04 = ?$
 (A) $1\frac{1}{5}$ (B) $1\frac{2}{5}$ (C) $1\frac{1}{25}$ (D) None of these
2. Express 5kg 8g as kg using decimal:
 (A) 5.8 Kg (B) 5.08 Kg (C) 5.008 Kg (D) 58 Kg
3. 0.4 can be written as :
 (A) $\frac{4}{10}$ (B) $\frac{4}{100}$ (C) $\frac{4}{1000}$ (D) None of these
4. Decimal number part of 7.25 is :
 (A) 7 (B) 0.2 (C) 0.25 (D) 0.05
5. Decimal representation of $7 + \frac{4}{10} + \frac{3}{100}$ is :
 (A) 0.743 (B) 7.43 (C) 74.3 (D) 0.43
6. How many km are there in 1 m ?
 (A) 0.1 (B) 0.01 (C) 0.001 (D) 0.0001
7. The weight of a basket ball is about 600000 mg. It is :
 (A) less than 600 g (B) greater than 600g
 (C) equal to 600g (D) none of these
8. 0.99, 9.90, 9.09, 0.90, 0.909 arranged in descending order :
 (A) 9.09, 0.99, 9.90, 0.90, 0.909 (B) 9.90, 9.09, 0.99, 0.909, 0.90
 (C) 9.90, 0.99, 0.909, 9.09, 0.90 (D) 9.09, 9.90, 0.99, 0.909, 0.90
9. The decimal 0.238 is equal to the fraction
 (A) $119/500$ (B) $238/25$ (C) $119/25$ (D) $119/50$
10. How many $\frac{1}{10}$ together make 1 ?
 (A) 10 (B) 1 (C) 100 (D) none of these
11. When 0.02 is written as a fraction in the simplest form, the sum of the numerator and denominator is:
 (A) 12 (B) 21 (C) 51 (D) 100
12. Which of the following decimals is the greatest ?
 (A) 0.182 (B) 0.0925 (C) 0.29 (D) 0.038
13. Which of the following decimals is the smallest ?
 (A) 0.27 (B) 1.5 (C) 0.082 (D) 0.103

14. Which of the following is a true statement ?
 (A) $1.14 > 1.2$ (B) $1.143 > 1.15$ (C) $1.14 < 1.2$ (D) $1.14 < 1.040$
15. The height of Jaya, Sabina, Sanju and Rohit are 1.16 m, 162cm, 1600mm and 1640mm respectively. Who is the tallest of them all ?
 (A) Jaya (B) Sabina (C) Sanju (D) Rohit
16. Which decimal number is greater than $\frac{3}{4}$?
 (A) 0.5 (B) 0.85 (C) 0.73 (D) 0.75
17. $0.4 \times 0.4 \times 0.4 = ?$
 (A) 6.4 (B) 0.64 (C) 0.064 (D) None of these
18. $2.08 \div (0.16) = ?$
 (A) 13 (B) 0.13 (C) 1.3 (D) None of these
19. What should be subtracted from 0.1 to get 0.03 ?
 (A) 0.7 (B) .07 (C) .007 (D) None of these
20. What should be added to 3.07 to get 3.5 ?
 (A) 0.57 (B) 0.34 (C) 0.43 (D) 0.02
21. The product of two decimals is 1.8576 . If one of the decimals is 0.54, find the other.
 (A) 3.44 (B) 34.4 (C) .344 (D) 344
22. Find the weight of 16 bags of sugar, each weighing 48.450 kg.
 (A) 77.520 kg (B) 7.7520 kg (C) 7752 kg (D) 775.20 kg
23. A car can cover a distance of 8.6 km in one litre of petrol. How far can it go on 36.5 litres of petrol ?
 (A) 313.9 km (B) 31.39 km (C) 0.3139 km (D) 3139 km

FILL IN THE BLANKS

- 1m = _____ km
- 10ml = _____ l
- 16kg 5g = _____ kg
- 3.02, 4.75, 1.63 are examples of _____ decimals.
- 2.22, 7.892, 8.7 are examples of _____ decimals.
- 6.2 and 6.200 are _____ decimals.
- $9 + \frac{2}{10} + \frac{6}{100}$ is equal to the decimal number _____.
- Decimal 16.25 is equal to the fraction _____.
- Fraction $\frac{7}{25}$ is equal to the decimal number _____.
- 0.004 _____ 0.0041 (<, >, =)

11. $8.2 + 3.95 - 1.15$ _____ 12 (<, >, =)
12. $3.5 + 4.05 - 6.005 =$ _____
13. Rs 0.43 + Rs 0.07 = _____
14. On simplifying $40.8 + 0.04 + 305.7$, we get ___

TRUE / FALSE

1. $\frac{341}{1000} = 3.410$
2. 6.2 and 6.200 are equivalent decimals.
3. 2.3, 3.41, 4.53, 5.62 are like decimals
4. $\frac{3}{25}$ is 0.12.
5. The number 43.060 in words is forty three and sixty hundredths
6. $3.02 < 3.2$
7. 999ml is less than 1 litre
8. Simplify : $3.03 + 0.016 = 3.019$
9. Simplify : $4.5(3.25-2) = 12.625$
10. If $219 \times 17 = 3723$, then 1.7×21.9 is equal to 3.723
11. If $1392 \div 24 = 58$, then $13.92 \div 24 = 0.58$
12. $25.658 \div 0.01 = 2565.8$

MATCH THE COLUMN

- | 1. | Column I | | Column II |
|----|----------------|-----|-----------|
| | (A) Rs 8.20 | (p) | 5460 g |
| | (B) 5.46 kg | (q) | Rs.82.3 |
| | (C) 546 gm | (r) | 820 paise |
| | (D) 8230 paise | (s) | 0.546 kg |

SECTION -B (FREE RESPONSE TYPE)

VERY SHORT ANSWER TYPE

1. Write the following decimals in the place value table.

(a) 23.506	(b) 5.678
------------	-----------
2. Write each of the following as decimals:

(a) two hundred and seven hundredths
(b) three tens five ones seven tenth and two hundredth
3. Write each of the following as decimal.

(a) $300 + 50 + 7 + \frac{5}{10} + \frac{9}{100}$	(b) $300 + \frac{3}{100} + \frac{8}{1000}$
---	--

4. Using decimal express
 (a) 27 rupees and 3 paise as rupees. (b) 5 cm as meter
 (c) 9 cm 8mm as cm. (d) 26 kg 30g as kg.
5. Which one is greater
 (a) 5.678, 5.67 (b) 2.3, 2.257
6. In each of the following pairs of decimal numbers, state which number is greater :
 (a) 539.2 or 97.654 (b) 65.23 or 65.38
7. **Add**
 (a) 8.3, 5.6 (b) 5.8, 0.0009
8. **Subtract**
 (a) 0.36 from 18.24 (b) 5.158 from 7.9

SHORT ANSWER TYPE

9. Show the following number on number line
 (a) 1.7 (b) 2.3
10. Represent the following numbers on the number line:
 (i) 0.3 (ii) 1.7 (iii) 1.3 (iv) 2.8
11. Write the following decimal as fraction. Reduce the fraction to lowest form
 (a) 3.5 (b) 80.25
12. Write as decimals
 (a) $\frac{3}{5}$ (b) $\frac{7}{4}$
13. Write the following decimal in words
 (a) 23.57 (b) 4.06
14. Put these numbers in order of size, smallest first :
 207.08, 206.80, 200.8, 207.8, 206.08
15. Put these number in order of size, Starting with largest
 0.1007, 0.0071, 0.0710, 0.0171
16. Simplify :
 1.01 - 0.1 - 0.001 + 10
17. What must be added to 89.191 to get the smallest 3-digit number ?

LONG ANSWER TYPE

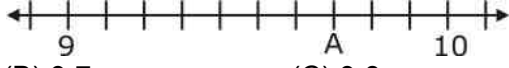
18. Subtract : (First express metric measures in decimal notation)
 (i) 7 km 698 m from 15 km 25 m (ii) 25 m 89 cm from 40 m 2 cm
 (iii) 12 L 45 mL from 15 L 600 mL
19. Convert each of the following decimals into a fraction in the lowest terms :
 (i) 0.325 (ii) 0.075 (iii) 0.550 (iv) 0.005
20. Arrange in the increasing order :
 (i) 0.125, 0.521, 0.152, 1.215 (ii) 4.123, 4.132, 41.320, 14.203

21. Add (First express metric measures in decimal notation and then add.)
- Rs. 107.69 + Rs. 596.84
 - 13 km 831 m and 5 km 78 m
 - 17 g 8 mg, 295 g 87 mg, 64 g 392 mg
22. Find the cost of one pen if the cost of 24 pens is Rs. 2986.80
23. A bowler took 15 wickets for 321 runs. What is his average score per wicket ?
24. Mr. Soni bought some bags of cement, each weighing 49.8 kg. If the total weight of all the bags is 1792.8 kg, how many bags did he buy ?
25. The sum of three numbers is 112.165. If two numbers are 25.5 and 59.63, find the third number.
26. Mani was 1.35 m tall in 2004. His height increase 0.2 m in one year. What is his height in 2005?

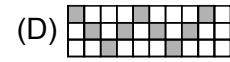
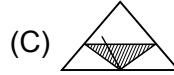
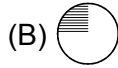
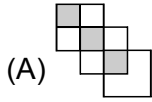
EXERCISE 02

SECTION -A (COMPETITIVE EXAMINATION QUESTION)

MULTIPLE CHOICE QUESTIONS

- A cricket pitch is about 264cm wide . In metres it is equal to
 (A) 26.4m (B) 2.64m (C) 0.264m (D) 0.0264m
- The decimal number represented by the point A on the given number line is

 (A) 9.9 (B) 9.7 (C) 9.8. (D) 9.2.
- The decimal form of 'four ones and three-tenths' is
 (A) 1.3 (B) 4.03 (C) 4.3 (D) 43.0
- Ritu's school is at a distance of 6 km 530 m from her home. She traveled 1 km 70 m by foot and rest by bus. How much distance did she covered by bus?
 (A) 8.460 km (B) 7.500 km (C) 6.490 km (D) 5.460 km
- 5206m - 2051m expressed as km is
 (A) 31.55km (B) 3.155km (C) 0.3155km (D) 315.5km
- The value of $4 + 4.44 + 44.4 + 4.04 + 444$ is
 (A) 500.88 (B) 577.2 (C) 495.22 (D) 472.88
- Which of the following is equal to 3.14×10^4 ?
 (A) 314 (B) 3140 (C) 31400 (D) 3140000
- If $219 \times 17 = 3723$, then 1.7×21.9 is equal to
 (A) 0.3723 (B) 3.723 (C) 37.23 (D) 372.3

9. In which figure does the shaded part represents 0.3 ?



10. If 0.111 is approximately equal to $\frac{1}{9}$, then the approximate value of 0.777 is

(A) $\frac{5}{9}$

(B) $\frac{7}{9}$

(C) $\frac{2}{9}$

(D) $\frac{1}{9}$

11. The value of $[2.5 \times 1.5 + 9.8 + \{7.2 - 6.8 + 1.3 + (8.2 - 1.2) - 6.7\}]$ is

(A) 15.35

(B) 15.45

(C) 15.55

(D) 15.65

12. The value of $[2.5 + \{3.7 - 4.5 + 5.1 + (29.8 - 7.2) + 3.5\}]$ is

(A) 32.9

(B) 32.8

(C) 32.5

(D) 32.7

SECTION -B (TECHIE STUFF)

13. Divide 12.75 by 10, we get

(A) 0.1275

(B) 1.275

(C) 12.75

(D) 127.5

14. Divide 42.8 by 0.02, we get

(A) 2140

(B) 2.140

(C) 0.2140

(D) None of these

15. Divide 0.00942 by 0.314, we get

(A) 3

(B) 0.3

(C) 0.03

(D) 0.003

16. The cost of 28 toys of the same kind is Rs 3462.20, the cost of each toy is

(A) 122.65

(B) 123.7

(C) 123.065

(D) 123.65

17. If the cost of 25 similar type of articles is Rs 224.25, then the cost of one article is

(A) Rs 8.97

(B) Rs 9.0

(C) Rs 9.20

(D) Rs 9.40

EXERCISE 03

(PREVIOUS YEAR EXAMINATION QUESTIONS)

1. $2.9 + P + Q = 9 - 1.8 - 1.32$. Find the total value of P and Q.

(NSTSE 2009)

(A) 2.18

(B) 2.98

(C) 3.42

(D) 3.62

2. Which of the following are the highest and lowest decimals ?

(NSTSE 2010)

I. 3.1258

II. 2.07

III. 3.6

IV. 2.051

(A) I and II

(B) II and III

(C) I and IV

(D) III and IV

3. The largest number in the set below is : 0.109, 0.2, 0.111, 0.114, 0.17, 0.19 (NSTSE 2011)

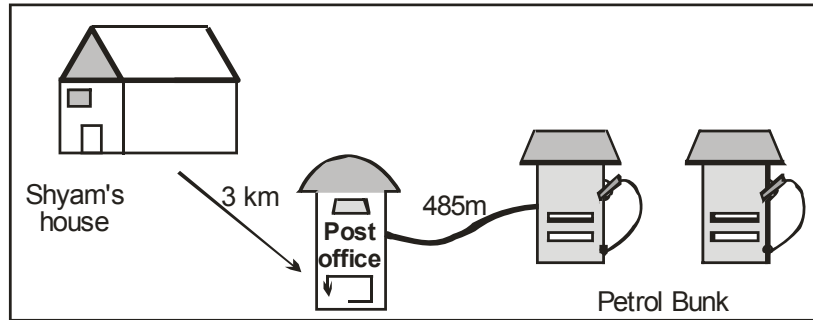
(A) 0.109

(B) 0.2

(C) 0.114

(D) 0.19

4. The diagram shows a road map. Shyam drives to the post office and then to the petrol bunk.



Find the distance, in km, drive by him ?

(NSTSE 2011)

- (A) 3.485 (B) 5.15 (C) 4.885 (D) 7.85

5. Pia, Ridhi and Muskaan divided 11.775 kg of wheat flour equally among themselves. Pia used all her wheat flour equally to bake 5 chocolate cakes. How much wheat flour did each cake need?

(IMO 2011)

- (A) 0.665 kg (B) 3.92 kg (C) 0.875 kg (D) 0.785 kg

6. What do we get when we subtract the difference of 15.13 and 9.7 from their sum ?

(NSTSE 2012)

- (A) 15.43 (B) 14.83 (C) 19.40 (D) 17.80

7. "I am 20th part of a rupee." Who am I ?

(NSTSE 2012)

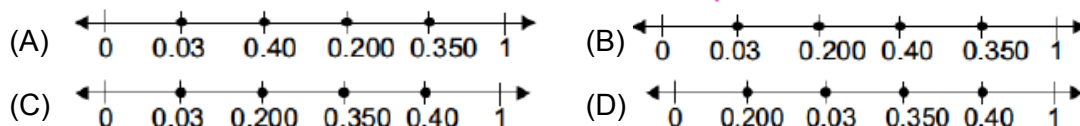
- (A) Rs 0.50 (B) Rs 0.05 (C) Rs 5.0 (D) Rs 0.005

8. Which of the following makes the sentence " 100.1 _____ one hundred and one hundredths" true ?

(NSTSE 2012)

- (A) < (B) > (C) = (D) ≤

9. Siddharth is ordering these decimals 0.40, 0.350, 0.200, 0.03. Which number line shows these decimals in the correct order? (Number lines are not drawn to scale.) (IMO 2012)



10. A grocery store sign indicates that 6 bananas are for Rs. 35.50, and a sign indicates that 5 oranges are for Rs. 58.70. Find the total cost of buying 2 bananas and 2 oranges.

(IMO 2012)

- (A) Rs.28.96 (B) Rs.12.84 (C) Rs. 35.3 (D) Rs. 48.5

11. 8 tenths less than _____ is sum of 4.56 and 3.85.

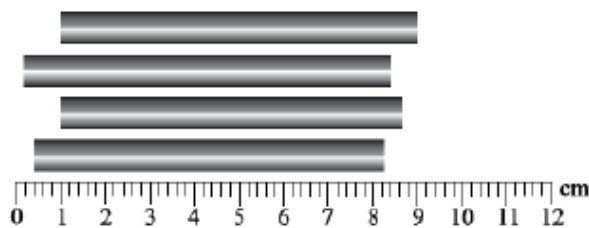
(IMO 2012)

- (A) 4.568 (B) 9.21 (C) 5.36 (D) 12.56

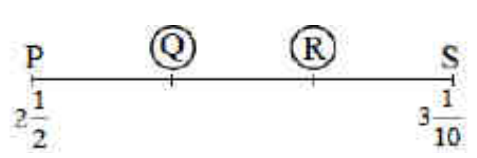
12. A shopkeeper has 150 litres of oil in a drum. He sells 15 L 500 mL, 23 L 250 mL, 13 L 750 mL and 29 L oil to four customers. How much oil is now left in the drum? (IMO 2012)

- (A) 77 L 50 mL (B) 875000 L (C) 68 L 500 mL (D) 975000 L

13. Rishab had a Rs.1000 note. He bought a geometry box for Rs.64.75, a packet of pencil colours for Rs. 52.89 and 2 books for Rs. 300 each. How much amount was left with him? **(IMO 2012)**
 (A) Rs. 285.86 (B) Rs. 582.36 (C) Rs.588.56 (D) Rs. 282.36
14. What is the value of 108 thousandth multiplied by 15 ones ? **(NSTSE 2013)**
 (A) 1.62 (B) 15.108 (C) 108.0 (D) 16.20
15. The total mass of a sack of rice and 8 identical bags of flour is 51.4 kg. If mass of each bag of flour is 4.92 kg, what is the mass of the sack of rice ? **(NSTSE 2013)**
 (A) 12.04 kg (B) 12.4 kg (C) 39.36 kg (D) 411.2 kg
16. What is the value of $\frac{2013 \times 2.013}{201.3 \times 20.13}$? **(NSTSE 2013)**
 (A) 0.01 (B) 0.1 (C) 1 (D) 10
17. Which of the following statements is correct? **(IMO 2013)**
 (A) 14 tenths 4 thousandths = 0.144 (B) 2 tenths 13 hundredths = 0.213
 (C) 4 hundredths 2 tenths = 0.024 (D) 7 tenths 17 hundredths = 0.87
18. The fractional number corresponding to the given number "9 tens + 5 ones + 3 tenths + 7 hundredths" is **(IMO 2013)**
 (A) $\frac{9437}{100}$ (B) $\frac{9537}{100}$ (C) $\frac{9000}{100}$ (D) $\frac{9637}{100}$
19. Beena bought 12 kg of sugar. After filling 11 containers of the same size. She had 3.2 kg left. How much sugar was there in each container? **(IMO 2013)**
 (A) 0.5 kg (B) 0.6 kg (C) 0.7 kg (D) 0.8 kg
20. The diagram below shows a list of decimals. **(IMO 2013)**
 I. 53.760 II. 4.016 III. 2.63 IV. 0.06
 Which are the highest and lowest decimals respectively?
 (A) I and II (B) II and III (C) III and IV (D) I and IV
21. The given figure shows 4 bars of different lengths. What is the length of the longest bar? **(IMO 2013)**



- (A) 7.8 cm (B) 8.2 cm (C) 8 cm (D) 8.1 cm
22. 2500 metres of cotton cloth was made into 20 rolls of 30 m each and 25 rolls of 20 m each. Find the length of the remaining cloth in metres and how many rolls of 70 m can be made with the remaining cloth? **(IMO 2013)**
 (A) 700 m, 10 (B) 1400 m, 20 (C) 2100 m, 30 (D) None of these

23. Aunt A, Aunt B and Uncle C divided 11.775 kg of wheat flour equally among themselves. Aunt A used all her wheat flour equally to bake 5 chocolate cakes. How much wheat flour did each cake need ? **(IMO 2013)**
 (A) 750 g (B) 780 g (C) 785 g (D) 500 g
24. Goods weighing 132.95 kg were loaded in a lorry at the first station. At the second station goods weighing 34.980 kg were loaded. At the third station, goods weighing 98.85 kg were downloaded. What is the weight of the goods left? **(IMO 2013)**
 (A) 69.080 kg (B) 69.80 kg (C) 59.080 kg (D) 57.650 kg
25. A piece of cloth 4 m in width and 5 m in length has to be covered by square block prints. If each side of the square block is 0.2 m in length. How many such squares can be printed on the cloth? **(IMO 2013)**
 (A) 700 (B) 690 (C) 806 (D) 500
26. The difference between place values of digit 5 in 456.385 is _____ **(IMO 2014)**
 (A) 4995 (B) 499.95 (C) 49.995 (D) 49.999
27. Express the given expression in the standard form.
 $0.0001289 - 0.0000000274 \times 1293 + 0.0000419032$ **(IMO 2014)**
 (A) 1.35375×10^{-2} (B) 1.53357×10^{-4}
 (C) 1.35375×10^4 (D) 1.35375×10^{-4}
28. Sanya bought two dozen similar pens. She gave the cashier two Rs.100 notes and received Rs.13.60 as change. How much did each pen cost? **(IMO 2014)**
 (A) Rs. 7.77 (B) Rs.6.76 (C) Rs. 5.87 (D) Rs. 8.46
29. In the number line shown below. $PQ = QR = RS$. Find the approximate value of Q, R and $Q + R$. **(IMO 2014)**
- 
- | | Q | R | Q + R |
|-----|-----|-----|-------|
| (A) | 2.9 | 2.7 | 5.8 |
| (B) | 2.6 | 2.8 | 5.4 |
| (C) | 2.7 | 2.8 | 5.5 |
| (D) | 2.7 | 2.9 | 5.6 |
30. Subtract 29.375 from the sum of 85.75 and 5.9. **(IMO 2014)**
 (A) 62.275 (B) 63.275 (C) 64.275 (D) 65.275
31. Find the difference between the place value of 7 in 5369.70184 and face value of 3 in 536970184. **(IMO 2014)**
 (A) 2.3 (B) 2.7 (C) 230000 (D) 6997
32. Shalini spent Rs. 835.75 on buying clothes, Rs. 309.15 on buying fruits and vegetables, Rs. 168.90 on buying sweets and Rs. 60.50 on transport. She had 3 five hundred rupee notes in her purse. How much money was left with her? **(IMO 2014)**
 (A) Rs.142.35 (B) Rs. 125.70 (C) Rs.132.80 (D) Rs.115.70

ANSWER KEY >>

EXERCISE >> **01**
SECTION -A (FIXED RESPONSE TYPE)

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	C	C	A	C	B	C	C	B	A	A	C	C	C	C	D	B	C	A	B	C
Ques.	21	22	23																	
Ans.	A	D	A																	

FILL IN THE BLANKS

1. 0.001 2. 0.01 3. 16.005 4. like
 5. unlike 6. equivqlent 7. 9.26 8. $\frac{65}{4}$
 9. 0.28 10. < 11. < 12. 1.545
 13. 0.5 14. 346.54

TRUE / FALSE

1. False 2. True 3. False 4. True
 5. True 6. True 7. True 8. False
 9. False 10. False 11. True 12. True

MATCH THE COLUMN

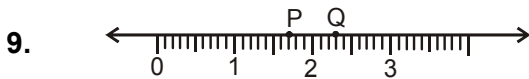
1. (A)–(r), (B)–(p), (C)–(s), (D)–(q)

SECTION -B (FREE RESPONSE TYPE)
VERY SHORT ANSWER TYPE

1.

Hundreds	Tens	Ones	Decimal	Tenths 1/10	Hundredths 1/100	Thousandths 1/1000	Number
	2	3	.	5	0	6	23.506
	.	5	.	6	7	8	5.678

2. (a) 200.07 (b) 35.72
 3. (a) 357.59 (b) 300.038
 4. (a) 27.03 Rs. (b) 0.05 m (c) 9.8 cm (d) 26.030 Kg.
 5. (a) $5.678 > 5.67$ (b) $2.3 > 2.257$
 6. (a) 539.2 (b) 65.38 7. (a) 13.9 (b) 5.8009
 8. (a) 17.88 (b) 2.742

SHORT ANSWER TYPE


Point P Represent 1.7 and Point Q represent 2.3.

11. (a) $3.5 = \frac{35}{10} = \frac{7}{2}$ (b) $80.25 = \frac{8025}{100} = \frac{321}{4}$

12. (a) 0.6 (b) 1.75

13. (a) two tens, three ones, five tenth and seven hundredth.
 (b) Four ones and six hundredth

14. 200.8, 206.08, 206.80, 207.08, 207.8

15. 0.1007, 0.0710, 0.0171, 0.0071

16. 10.909

17. 10.809

LONG ANSWER TYPE

18. (i) 7.327km (ii) 14.13 m (iii) 3.555L

19. (i) $\frac{13}{40}$ (ii) $\frac{3}{40}$ (iii) $\frac{11}{20}$ (iv) $\frac{1}{200}$

20. (i) 0.125, 0.152, 0.521, 1.215 (ii) 4.123, 4.132, 14.203, 41.320

21. (i) Rs. 704.53 (ii) 18.909 km (iii) 376.487 g

22. Rs 124.45 23. 21.4 24. 36 25. 27.035

26. 1.55m

EXERCISE 02
SECTION -A (COMPETITIVE EXAMINATION QUESTION)

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Ans.	B	B	C	D	B	A	C	C	A	B	C	A	B	A	C	D	A

EXERCISE 03
(PREVIOUS YEAR EXAMINATION QUESTIONS)

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	B	D	B	A	D	C	B	B	C	C	B	C	D	A	A	C	D	B	D	D
Ques.	21	22	23	24	25	26	27	28	29	30	31	32								
Ans.	D	B	C	A	D	C	D	A	D	A	A	B								