

Maharashtra Board Solutions Class 9-Maths

(Part 1): Chapter 2.1- Real Numbers

BOOK SOLUTIONS
CLASS 9
MATHS

CHAPTER 2.1
Real Numbers






Maharashtra Board Solutions→

For any clarifications or questions you can write to info@indcareer.com

Postal Address

IndCareer.com, 52, Shilpa Nagar, Somalwada Nagpur - 440015
Maharashtra, India

WhatsApp: +91 9561 204 888, **Website:** <https://www.indcareer.com>

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Maharashtra Board Solutions Class 9-Maths

(Part 1): Chapter 2.1- Real Numbers

Class 9: Maths Chapter 2.1 solutions. Complete Class 9 Maths Chapter 2.1 Notes.

Maharashtra Board Solutions Class 9-Maths (Part 1): Chapter 2.1- Real Numbers

Maharashtra Board 9th Maths Chapter 2.1, Class 9 Maths Chapter 2.1 solutions

Question 1.

Classify the decimal form of the given rational numbers into terminating and non-terminating recurring type.

i. $\frac{13}{5}$

ii. $\frac{2}{11}$

iii. $\frac{29}{16}$

iv. $\frac{17}{125}$

v. $\frac{11}{6}$

Solution:

i. Denominator = $5 = 1 \times 5$

Since, 5 is the only prime factor denominator.

the decimal form of the rational number $\frac{13}{5}$ will be terminating type.

ii. Denominator = $11 = 1 \times 11$

Since, the denominator is other than prime factors 2 or 5.

∴ the decimal form of the rational number $\frac{2}{11}$ will be non-terminating recurring type.

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iii. Denominator = 16

$$= 2 \times 2 \times 2 \times 2$$

Since, 2 is the only prime factor in the denominator.

∴ the decimal form of the rational number $\frac{29}{16}$ will be terminating type.

iv. Denominator = 125

$$= 5 \times 5 \times 5$$

Since, 5 is the only prime factor in the denominator.

the decimal form of the rational number $\frac{17}{125}$ will be terminating type.

v. Denominator = 6

$$= 2 \times 3$$

Since, the denominator is other than prime factors 2 or 5.

∴ the decimal form of the rational number $\frac{11}{6}$ will be non-terminating recurring type.

Question 2.

Write the following rational numbers in decimal form.

i. $\frac{127}{200}$

ii. $\frac{25}{99}$

iii. $\frac{23}{7}$

iv. $\frac{4}{5}$

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v. $\frac{17}{8}$

Solution:

i. -57

$$\begin{array}{r} 0.714285... \\ 7 \overline{) 5.000000} \\ \underline{- 0} \\ 50 \\ \underline{- 49} \\ 10 \\ \underline{- 7} \\ 30 \\ \underline{- 28} \\ 20 \\ \underline{- 14} \\ 60 \\ \underline{- 56} \\ 40 \\ \underline{- 35} \\ 5 \end{array}$$

$$\therefore \frac{-5}{7} = -0.\overline{714285}$$

ii. 911

$$\begin{array}{r}
 0.81.... \\
 11 \overline{) 9.00} \\
 \underline{- 0} \\
 90 \\
 \underline{- 88} \\
 20 \\
 \underline{- 11} \\
 9
 \end{array}$$

$$\therefore \frac{9}{11} = 0.\overline{81}$$

iii. $\sqrt{5}$

		2.2360679...
2		<u>5.00000000000000</u>
+ 2		- 4
42		100
+ 2		- 84
443		1600
+ 3		- 1329
4466		27100
+ 6		- 26796
44720		30400
+ 0		- 0
447206		3040000
+ 6		- 2683236
4472127		35676400
+ 7		- 31304889
44721349		437151100
+ 9		- 402492141
44721358		34658959

$$\therefore \sqrt{5} = 2.2360679.....$$

iv. 12113

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$$\begin{array}{r}
 9.307692... \\
 13 \overline{)121.000000} \\
 \underline{-117} \\
 40 \\
 \underline{-39} \\
 10 \\
 \underline{-0} \\
 100 \\
 \underline{-91} \\
 90 \\
 \underline{-78} \\
 120 \\
 \underline{-117} \\
 30 \\
 \underline{-26} \\
 4
 \end{array}$$

$$\therefore \frac{121}{13} = 9.\overline{307692}$$

v. 298

$$\begin{array}{r}
 3.625 \\
 8 \overline{)29.000} \\
 \underline{-24} \\
 50 \\
 \underline{-48} \\
 20 \\
 \underline{-16} \\
 40 \\
 \underline{-40} \\
 0
 \end{array}$$

$$\therefore \frac{29}{8} = 3.625$$

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Question 3.

Write the following rational numbers in pq form.

i. $0.\dot{6}$

ii. $0.\overline{37}$

iii. $3.\overline{17}$

iv. $15.\overline{89}$

v. $2.\overline{514}$

Solution:

i. Let $x = 0.\dot{6} \dots$ (i)

$\therefore x = 0.666\dots$

Since, one number i.e. 6 is repeating after the decimal point.

Thus, multiplying both sides by 10,

$10x = 6.666\dots$

$\therefore 10x = 6.6 \dots$ (ii)

Subtracting (i) from (ii),

$10x - x = 6.6 - 0.6$

$\therefore 9x = 6$

$\therefore x = \frac{6}{9} = \frac{3 \times 2}{3 \times 3}$

$\therefore x = \frac{2}{3}$

$\therefore 0.\dot{6} = \frac{2}{3}$

ii. Let $x = 0.\overline{37}$

$\therefore x = 0.3737\dots$

Since, two numbers i.e. 3 and 7 are repeating after the decimal point.

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Thus, multiplying both sides by 100,

$$100x = 37.3737.....$$

$$\therefore 100x = 37.\overline{37} \dots\dots(ii)$$

Subtracting (i) from (ii),

$$100x - x = 37.\overline{37} - 0.\overline{37}$$

$$\therefore 99x = 37$$

$$\therefore x = \frac{37}{99}$$

$$\therefore 0.\overline{37} = \frac{37}{99}$$

iii. Let $x = 3.\overline{17} \dots(i)$

$$\therefore x = 3.1717\dots$$

Since, two numbers i.e. 1 and 7 are repeating after the decimal point.

Thus, multiplying both sides by 100,

$$100x = 317.1717\dots$$

$$\therefore 100x = 317.\overline{17} \dots(ii)$$

Subtracting (i) from (ii),

$$100x - x = 317.\overline{17} - 3.\overline{17}$$

$$\therefore 99x = 314$$

$$\therefore x = \frac{314}{99}$$

$$\therefore 3.\overline{17} = \frac{314}{99}$$

iv. Let $x = 15.89\overline{} \dots\dots\dots$ (i)

$$\therefore x = 15.8989\dots$$

Since, two numbers i.e. 8 and 9 are repeating after the decimal point.

Thus, multiplying both sides by 100,

$$100x = 1589.8989\dots$$

$$\therefore 100x = 1589.89\overline{} \dots\dots\dots \text{... (ii)}$$

Subtracting (i) from (ii),

$$100x - x = 1589.89\overline{} - 15.89\overline{}$$

$$\therefore 99x = 1574$$

$$\therefore x = \frac{1574}{99}$$

$$\therefore 15.\overline{89} = \frac{1574}{99}$$

v. Let $x = 2.514\overline{} \dots\dots\dots$

$$\therefore x = 2.514514\dots$$

Since, three numbers i.e. 5, 1 and 4 are repeating after the decimal point.

Thus, multiplying both sides by 1000,

$$1000x = 2514.514514\dots$$

$$1000x = 2514.514\overline{} \dots\dots\dots \text{... (ii)}$$

Subtracting (i) from (ii),

$$1000x - x = 2514.514\overline{} - 2.514\overline{}$$

$$\therefore 999x = 2512$$

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$$\therefore x = \frac{2512}{999}$$

$$\therefore \overline{2.514} = \frac{2512}{999}$$

Question 1.

How to convert 2.43 in pq form ? (Textbook pg. no. 20)

Solution:

Let $x = 2.43$

In 2.43, the number 4 on the right side of the decimal point is not recurring.

So, in order to get only recurring digits on the right side of the decimal point, we will multiply 2.43 by 10.

$$\therefore 10x = 24.3 \dots (i)$$

$$\therefore 10x = 24.333\dots$$

Here, digit 3 is the only recurring digit. Thus, by multiplying both sides by 10, $100x = 243.333\dots$

$$\therefore 100x = 243.3 \dots (ii)$$

Subtracting (i) from (ii),

$$100x - 10x = 243.3 - 24.3$$

$$\therefore 90x = 219$$

$$\therefore x = \frac{219}{90} = \frac{3 \times 73}{3 \times 30} = \frac{73}{30}$$

$$\therefore \overline{2.43} = \frac{73}{30}$$

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Class 9 Maths

Part 1

- Chapter 1.1- Sets
- Chapter 1.2- Sets
- Chapter 1.3- Sets
- Chapter 1.4- Sets
- Chapter 2.1- Real Numbers
- Chapter 2.2- Real Numbers
- Chapter 2.3- Real Numbers
- Chapter 2.4- Real Numbers
- Chapter 2.5- Real Numbers
- Chapter 3.1- Polynomials
- Chapter 3.2- Polynomials
- Chapter 3.3- Polynomials
- Chapter 3.4- Polynomials
- Chapter 3.5- Polynomials
- Chapter 3.6- Polynomials
- Chapter 4.1- Ratio and Proportion
- Chapter 4.2- Ratio and Proportion
- Chapter 4.3- Ratio and Proportion
- Chapter 4.4- Ratio and Proportion
- Chapter 4.5- Ratio and Proportion
- Chapter 5.1- Linear Equations in Two Variables
- Chapter 5.2- Linear Equations in Two Variables
- Chapter 6.1- Financial Planning
- Chapter 6.2- Financial Planning
- Chapter 7.1- Statistics
- Chapter 7.2- Statistics
- Chapter 7.3- Statistics
- Chapter 7.4- Statistics

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- Chapter 7.5- Statistics

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The Maharashtra State Board of Secondary and Higher Secondary Education or MSBSHSE (Marathi: महाराष्ट्र राज्य माध्यमिक आणि उच्च माध्यमिक शिक्षण मंडळ), is an **autonomous and statutory body established in 1965**. The board was amended in the year 1977 under the provisions of the Maharashtra Act No. 41 of 1965.

The Maharashtra State Board of Secondary & Higher Secondary Education (MSBSHSE), Pune is an independent body of the Maharashtra Government. There are more than 1.4 million students that appear in the examination every year. The Maha State Board conducts the board examination twice a year. This board conducts the examination for SSC and HSC.

The Maharashtra government established the Maharashtra State Bureau of Textbook Production and Curriculum Research, also commonly referred to as Ebalbharati, in 1967 to take up the responsibility of providing quality textbooks to students from all classes studying under the Maharashtra State Board. MSBHSE prepares and updates the curriculum to provide holistic development for students. It is designed to tackle the difficulty in understanding the

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concepts with simple language with simple illustrations. Every year around 10 lakh students are enrolled in schools that are affiliated with the Maharashtra State Board.

FAQs

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As of now, the MSCERT and Balbharti are responsible for the syllabus and textbooks of Classes 1 to 8, while Classes 9 and 10 are under the Maharashtra State Board of Secondary and Higher Secondary Education (MSBSHSE).

How many state boards are there in Maharashtra?

The Maharashtra State Board of Secondary & Higher Secondary Education, conducts the HSC and SSC Examinations in the state of Maharashtra through its nine Divisional Boards located at Pune, Mumbai, Aurangabad, Nasik, Kolhapur, Amravati, Latur, Nagpur and Ratnagiri.

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