

Recurring Decimals to Fractions

ANSWERS

1

Write $0.\dot{2}7$ as a fraction in its simplest form.

Take x away from $100x$. The tails cancel.

$$100x = 27.\underline{272727...}$$

$$x = 0.\underline{272727...}$$

$$99x = 27$$

$$x = \frac{27}{99} = \frac{3}{11}$$

Answer $\frac{3}{11}$

2

Write $0.\dot{4}$ as a fraction in its simplest form.

Multiply by 10 or by 100?

$$x = 0.\underline{444444...}$$

$$10x = \underline{4}.\underline{444444...}$$

$$9x = 4$$

$$x = \frac{4}{9}$$

Answer $\frac{4}{9}$

3

Write $0.\dot{5}$ as a fraction in its simplest form.

$$x = 0.\underline{555...}$$

$$10x = 5.\underline{55...}$$

$$9x = 5$$

$$x = \frac{5}{9} = \frac{5}{9}$$

Answer $\frac{5}{9}$

4

Write $0.\dot{1}8$ as a fraction in its simplest form.

$$x = 0.\underline{181818...}$$

$$100x = 18.\underline{1818...}$$

$$99x = 18$$

$$x = \frac{18}{99} = \frac{2}{11}$$

Answer $\frac{2}{11}$

5

Write $0.\dot{3}6$ as a fraction in its simplest form.

$$x = 0.\underline{363636...}$$

$$100x = 36.\underline{3636...}$$

$$99x = 36$$

$$x = \frac{36}{99} = \frac{4}{11}$$

Answer $\frac{4}{11}$

6

Write $0.\dot{1}2\dot{3}$ as a fraction in its simplest form.

$$x = 0.\underline{123123123...}$$

$$1000x = 123.\underline{123123...}$$

$$999x = 123$$

$$x = \frac{123}{999} = \frac{41}{333}$$

Answer $\frac{41}{333}$

7

Write $1.222...$ as a mixed number.

$$0.222... = \frac{2}{9}$$

Answer $1\frac{2}{9}$

8

Work out $0.333... + 0.444...$. Give your answer as a fraction.

$$\frac{3}{9} + \frac{4}{9}$$

Answer $\frac{7}{9}$

Recurring Decimals to Fractions *further practice*

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9

Write $2.\dot{1}5$ as a mixed number in its simplest form.

$$0.1515... = \frac{15}{99} = \frac{5}{33}$$

Answer $2\frac{5}{33}$

10

Write $\frac{7}{33}$ as a recurring decimal.

$$\frac{7}{33} = \frac{21}{99}$$

Answer $0.\dot{2}1$

11

Write in order, smallest first.

$$0.\dot{2}3 \quad 0.\dot{2}\dot{3} \quad 0.2\dot{3}$$

$$0.230..., 0.2323..., 0.2333...$$

Order $0.23, 0.\dot{2}\dot{3}, 0.2\dot{3}$

12

Write $0.4\dot{6}$ as a fraction in its simplest form.

$$100x - 10x = 46.66... - 4.66... = 42$$

Answer $\frac{7}{15}$

13

A rectangle is $0.\dot{6}$ m long and $0.\dot{2}7$ m wide. Find its area as a fraction in its simplest form.

$$\frac{2}{3} \times \frac{3}{11}$$

Answer $\frac{2}{11} \text{ m}^2$

14

The probability that a spinner lands on blue is $0.\dot{3}6$. The spinner is spun 220 times. How many times would you expect it to land on blue?

$$0.\dot{3}6 = \frac{4}{11}, \frac{4}{11} \times 220$$

Answer 80

15

A team divides the number of matches it won by the number of matches it played. The answer is $0.41\dot{6}$. The team played fewer than 20 matches. How many did it win, and how many did it play?

$$1000x - 100x = 375, \text{ so } x = \frac{5}{12}$$

Answer won 5, played 12

16

Ryan says $0.\dot{9}$ is less than 1. Use algebra to show that Ryan is wrong.

$$10x - x = 9.99... - 0.99... = 9, \text{ so } 9x = 9$$

Answer $0.\dot{9} = 1$