

Identifying Irrational Numbers Assignment

Math 8

ANSWERS

Determine whether each decimal is rational or irrational number.

1. 0.1223426574

Irrational number

2. 0.3434343

Rational number

3. $0.\overline{22}$

Rational number

4. 2.389467123

Irrational number

5. $12.\overline{349}$

Rational number

6. $\pi + 34$

Irrational number

7. $1.12 - \pi$

Irrational number

8. 34,123876

Irrational number

Convert each fraction to a decimal, then determine if it is a rational or an irrational number.

9. $\frac{32}{25}$

$$\frac{32}{25} = \frac{32 * 4}{25 * 4} = \frac{128}{100} = 1.28$$

$$\frac{32}{25} = 1.28$$

A terminating decimal

Rational number

10. $3\frac{1}{9}$

$$3\frac{1}{9} = \frac{28}{9}$$

$$28 \div 9 = 3.11 \dots$$

$$\begin{array}{r} -27 \\ 10 \\ -9 \\ 10 \\ -9 \\ 1 \end{array}$$

$$3\frac{1}{9} = 3.\overline{1}$$

A repeating decimal

Rational number

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11. $\frac{5}{11}$
 $5 \div 11 = 0.4545 \dots \dots$

$$\begin{array}{r} -0 \\ 50 \\ -44 \\ \hline 60 \\ -55 \\ \hline 50 \\ -44 \\ \hline 60 \\ -55 \\ \hline 5 \end{array}$$

$\frac{5}{11} = 0.\overline{45}$

A repeating decimal
Rational number

12. $\frac{45}{23}$
 $45 \div 23 = 1.9565 \dots \dots$

$$\begin{array}{r} -23 \\ 220 \\ -207 \\ \hline 130 \\ -115 \\ \hline 150 \\ -138 \\ \hline 12 \end{array}$$

$\frac{45}{23} = 1.9565 \dots \dots$

Irrational number

Determine whether each square root is rational or irrational number.

13. $\sqrt{\frac{324}{81}}$
 $\sqrt{\frac{324}{81}} = \frac{18}{9} = 2$

This number is rational.

14. $\sqrt{155}$
 $\sqrt{155} = 12.449899 \dots \dots$

This number is irrational.

15. $\sqrt{\pi}$
 $\sqrt{\pi} = 1.772453 \dots \dots$

This number is irrational.

16. $-\sqrt{7,921}$
 $-\sqrt{7,921} = -89$

This number is rational.

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17. $-\sqrt{256}$

$-\sqrt{256} = 16$

This number is rational.

18. $\sqrt{0.1243}$

$\sqrt{0.1243} = 0.3525$

This number is rational.

19. $\sqrt{487}$

$\sqrt{487} = 22.06807 \dots\dots$

This number is irrational.

20. $\sqrt{6,084}$

$\sqrt{6,084} = 78$

This number is rational.