

8.NS.A.1: Classifying Numbers

- 1 Which number is rational?
 - 1) π
 - 2) $\frac{5}{4}$
 - 3) $\sqrt{7}$
 - 4) $\sqrt{\frac{3}{2}}$
- 2 Which is a rational number?
 - 1) $\sqrt{8}$
 - 2) π
 - 3) $5\sqrt{9}$
 - 4) $6\sqrt{2}$
- 3 Which expression is rational?
 - 1) π
 - 2) $\sqrt{\frac{1}{2}}$
 - 3) $\sqrt{3}$
 - 4) $\sqrt{\frac{1}{4}}$
- 4 Which is an irrational number?
 - 1) $\sqrt{9}$
 - 2) 3.14
 - 3) $\sqrt{3}$
 - 4) $\frac{3}{4}$
- 5 Which is an irrational number?
 - 1) 0
 - 2) π
 - 3) $-\frac{1}{3}$
 - 4) $\sqrt{9}$
- 6 The number 0.14114111411114... is
 - 1) integral
 - 2) rational
 - 3) irrational
 - 4) whole
- 7 Which expression represents an irrational number?
 - 1) $\sqrt{2}$
 - 2) $\frac{1}{2}$
 - 3) 0.17
 - 4) 0
- 8 Which number is irrational?
 - 1) $\sqrt{9}$
 - 2) $\sqrt{8}$
 - 3) 0.3333
 - 4) $\frac{2}{3}$
- 9 Which is an irrational number?
 - 1) $0.\bar{3}$
 - 2) $\frac{3}{8}$
 - 3) $\sqrt{49}$
 - 4) π
- 10 Which number is irrational?
 - 1) $\frac{5}{4}$
 - 2) $0.\bar{3}$
 - 3) $\sqrt{121}$
 - 4) π
- 11 The value of $\sqrt{x^2 - 9}$ is a real and irrational number when x is equal to
 - 1) 5
 - 2) 0
 - 3) -3
 - 4) 4
- 12 Which number below is irrational?
 $\sqrt{\frac{4}{9}}, \sqrt{20}, \sqrt{121}$

Why is the number you chose an irrational number?
- 13 Given: $\frac{\sqrt{99}}{11}, \sqrt{164}, \sqrt{196}$

Identify the expression that is a rational number and explain why it is rational.
- 14 Write an irrational number and explain why it is irrational.

8.NS.A.1: Classifying Numbers**Answer Section**

1 ANS: 2

$\frac{5}{4}$ is rational because it is the ratio of two integers.

REF: 060003a

2 ANS: 3

$5\sqrt{9}$ is rational because it is the ratio of two integers, $\frac{15}{1}$.

REF: 060120a

3 ANS: 4

$\sqrt{\frac{1}{4}} = \frac{1}{2}$, the ratio of two integers.

REF: 080102a

4 ANS: 3

$\sqrt{3}$ is irrational as it may not be expressed as the ratio of two integers. $\sqrt{9} = \frac{3}{1}$ $3.14 = \frac{314}{100}$

REF: 010219a

5 ANS: 2

π may not be expressed as the ratio of two integers. $0 = \frac{0}{1}$ $\sqrt{9} = \frac{3}{1}$ $-\frac{1}{3} = \frac{-1}{3}$

REF: 060211a

6 ANS: 3

The number 0.14114111411114 . . . is irrational because it may not be expressed as the ratio of two integers. It is not a repeating decimal.

REF: 080208a

7 ANS: 1

$\sqrt{2}$ is irrational as it may not be expressed as the ratio of two integers. $0.17 = \frac{17}{100}$ $0 = \frac{0}{1}$

REF: 060303a

8 ANS: 2

$\sqrt{8}$ is irrational as it may not be expressed as the ratio of two integers. $\sqrt{9} = \frac{3}{1}$ $0.3333 = \frac{3333}{10000}$

REF: 010416a

9 ANS: 4

π is an irrational number as it may not be expressed as the ratio of two integers. $0.\bar{3} = \frac{1}{3}$ $\sqrt{49} = \frac{7}{1}$

REF: 080523a

10 ANS: 4

π may not be expressed as the ratio of two integers. $0.\bar{3} = \frac{1}{3}$ $\sqrt{121} = \frac{11}{1}$

REF: 080718a

11 ANS: 4

$$\sqrt{x^2 - 9} = \sqrt{4^2 - 9} = \sqrt{7}$$

REF: 060813b

12 ANS:

$\sqrt{20}$ is irrational because it may not be expressed as the ratio of two integers.

$$\sqrt{\frac{4}{9}} = \frac{2}{3}$$

$$\sqrt{121} = \frac{11}{1}$$

REF: 069923a

13 ANS:

$\sqrt{196}$ because the number may be written as the ratio of integers. $\frac{\sqrt{99}}{11} \neq 3$, $\sqrt{\frac{99}{11}} = 3$

REF: 080432a

14 ANS:

π because it may not be expressed as the ratio of two integers.

REF: 010632a