

Grade 8 - Rational and Irrational Numbers - Test

Common Core 8.NS.A.1, 8.NS.A.2 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This 20-point test checks rational and irrational numbers, repeating decimals and square root estimates (Common Core 8.NS.A.1 and 8.NS.A.2). Work alone, show every step, and write each final answer clearly. You have 45 minutes. Calculators are not needed unless a question says so.

About this test

- Grade: Grade 8
- Chapter: Rational and Irrational Numbers
- Standards: 8.NS.A.1, 8.NS.A.2
- Time: 45 minutes
- Total: 20 points

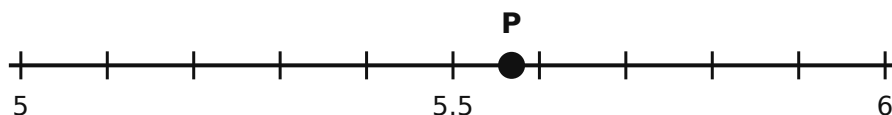
Question 1 - Fractions and decimals [3 pts]

- Write $\frac{7}{8}$ as a decimal. (1 point)
- Write $\frac{4}{9}$ as a decimal using a bar. (1 point)
- Is $\frac{7}{8}$ rational? Explain. (1 point)

Question 2 - Convert to a fraction [3 pts]

- Write $0.\bar{5}$ as a fraction. (1 point)
- Write $0.\bar{18}$ as a fraction in lowest terms. (2 points)

Question 3 - Locate a point [2 pts]



Point P on a number line.

Point P marks $\sqrt{31}$ on the number line. Between which two integers does $\sqrt{31}$ lie? Write the integers.

Estimate $\sqrt{31}$ to the nearest tenth.

Question 4 - Classify [2 pts]

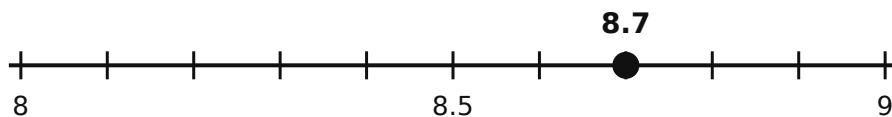
Write rational or irrational for each number.

- a. $\sqrt{81}$
- b. $\sqrt{15}$
- c. $0.\overline{72}$
- d. 2π

Question 5 - Order the numbers [2 pts]

Order from least to greatest: $\sqrt{10}$, 3.1, $\frac{16}{5}$, $3.\overline{2}$.

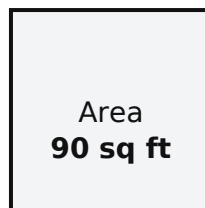
Question 6 - Compare [2 pts]



The point 8.7 is marked.

- a. Compare $\sqrt{75}$ and 8.7 using $<$ or $>$. (1 point)
- b. Compare π and 3.14. (1 point)

Question 7 - Square rug [3 pts]



side = ?

A square rug with area 90 square feet.

- a. Write an expression for the side length. (1 point)
- b. Between which integers is the side length? (1 point)
- c. Find the side length to the nearest tenth of a foot. (1 point)

Question 8 - Explain [3 pts]

Maya says $0.\bar{9}$ is irrational because it never ends. Is she correct? Show a calculation.