Lesson 7-2 · Session 1

Rational Numbers on a Number Line

Name _____ Date _____ Period _____

Maryland Standard 6.NOS.6 · Learning target — I can plot a rational number and its opposite on a number line.

Show a model, calculation, or explanation. Answer every part and label units when needed.

Exercises 1–12 earn 1 point for a correct response and 1 for supporting work. Spiral Review and Test Practice earn 1 point each.

Learn from a model

REMEMBER

- A rational number is a ratio of integers with a nonzero denominator; its decimal terminates or repeats.
- Rational numbers can be plotted on a number line, including between the integers.
- Watch out — on the negative side, larger digits mean positions farther left, so −5 is less than −2.
- Check it — mark the whole numbers first, then divide the gaps into equal parts.

WORKED EXAMPLE

Plotting a Rational Number and Its Opposite A tree trunk rises 1.8 meters above the ground. Its taproot reaches the opposite value. Plot both on a vertical number line.

Step 1 The ground is 0. Above the ground is positive; below the ground is negative.

Step 2 The height is 1.8, so the root value is its opposite: −1.8

Step 3 Between each pair of integers, mark ten equal parts so you can count tenths.

Step 4 Plot 1.8 eight tenths above 1, and plot −1.8 eight tenths below −1.

Answer The trunk is 1.8 m and the root is −1.8 m; both sit 1.8 units from 0.

Practice

1. Plot the following on a number line: −2, 1/2, −3.5, 2

Number line. Use the line below.



Answer _____

SHOW YOUR THINKING

2. Which is closer to 0: −1.5 or 2? _____

Answer _____

SHOW YOUR THINKING

3. Name a rational number between −1 and 0.

Answer _____

SHOW YOUR THINKING

4. Write each answer on the line.

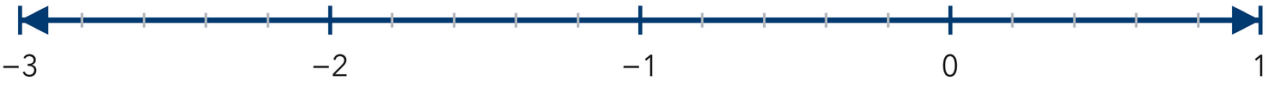
a. Write 3/5 as a decimal. _____
b. Write 0.25 as a fraction in lowest terms. _____
c. −4.2 falls between _____ and _____
d. Which is closer to 0, −0.9 or 1.4? _____
e. The opposite of 2.8 is _____

Answer _____

SHOW YOUR THINKING

5. Well Cap. A well cap sits 0.4 meters above a yard, and the water line sits 2.6 meters below the yard. Plot both numbers on a vertical number line with the tenths marked.

Number line. Use the line below.



Answer _____

SHOW YOUR THINKING

6. Recipe Card. A recipe calls for 9/4 cups of milk. Write 9/4 as a mixed number, then name the two integers it falls between.

Answer _____

RECORD YOUR RESPONSE

7. Cold Nights. Three overnight lows read −0.8, −3.25, and −1.6 degrees. Plot all three readings on one number line, then name the reading closest to 0.

Number line. Use the line below.



Answer _____

RECORD YOUR RESPONSE

8. Rosa says there is no rational number between −1 and −0.5, because those two numbers are already next to each other. Explain why she is wrong, then name two rational numbers that fit between them.
Sentence Frame: "I know this because..."

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. Describe where −3.2 sits between two consecutive integers.

Answer _____ between which integers

RECORD YOUR RESPONSE

10. Write the opposite of −4.5 and of 7/8.

Answer _____ both opposites

SHOW YOUR THINKING

11. Order Them. List −2.5, 1.5, −0.5, and 0 from least to greatest.

Answer _____ the order

SHOW YOUR THINKING

12. Find the Mistake. Tam says −1.8 sits between −1 and 0. Explain the mistake.

Answer _____ the mistake

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 7-1 Session 2. Give the value of −(−31).

Answer _____

SHOW YOUR THINKING

14. From Lesson 6-7 Session 1. Find the GCF of 24 and 40.

Answer _____

SHOW YOUR THINKING

15. From Lesson 4-2 Session 1. Write 0.25 as a percent.

Answer _____

SHOW YOUR THINKING

Test practice

16. On a number line, −0.7 sits between —

□ A. −2 and −1	□ B. 0 and 1
□ C. −1 and 0	□ D. −7 and −6

17. Which number is farthest right on a number line?

□ A. −3.5	□ B. 0
□ C. −1.5	□ D. 3.5

18. The opposite of −6.25 is —

□ A. 6.25	□ B. −6.25
□ C. 0	□ D. −62.5

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
Compare the actual values, especially when both are negative. Every part answered / Work shown / Units labeled when needed	I can do this: Independently / With a hint / With help Question to revisit: _____

One correction or question I want to discuss: _____

Check signs, scale, and labels. Use a number line or coordinate grid to verify one response.