

Just In Time Quick Check
Standard of Learning (SOL) 8.3a

Strand: Number and Number Sense

Standard of Learning (SOL) 8.3a

The student will estimate and determine the two consecutive integers between which a square root lies.

Grade Level Skills:

- Estimate and identify the two consecutive integers between which the positive or negative square root of a given number lies. Numbers are limited to natural numbers from 1 to 400.

[Just in Time Quick Check](#)

[Just in Time Quick Check Teacher Notes](#)

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [Where do they lie? \(word\)](#) / [\(PDF\)](#)
- VDOE Algebra Readiness Formative Assessments
 - [SOL 8.3a,b \(word\)](#) / [\(PDF\)](#)
- VDOE Algebra Readiness Remediation Plans
 - [Square Roots \(word\)](#) / [\(PDF\)](#)
- VDOE Word Wall Cards: Grade 8 [\(word\)](#) / [\(PDF\)](#)
 - Square Root – Definition
 - Square Root - Example
- Desmos Activity
 - [Square Tango](#)

Supporting and Prerequisite SOL: [7.1d](#), [6.3a](#), [6.3b](#), [6.4](#)

SOL 8.3a - Just in Time Quick Check

1. Identify the two consecutive integers between which each square root lies. Justify your answer.

Square Root	Consecutive Integers	Justification
$\sqrt{12}$		
$-\sqrt{45}$		
$-\sqrt{170}$		
$\sqrt{360}$		

2. Plot each of the following on the number line provided.

a) $\sqrt{15}$



b) $-\sqrt{6}$



3. Consider the number line.



What value could be placed underneath the radical to represent the plotted point? Justify your reasoning.

4. A square has an area of 200 square feet. Between what two consecutive integers would the length of each side fall? Justify your answer.

SOL 8.3a - Just in Time Quick Check Teacher Notes

Common Errors/Misconceptions and their Possible Indications

1. Identify the two consecutive integers between which each square root lies. Justify your answer.

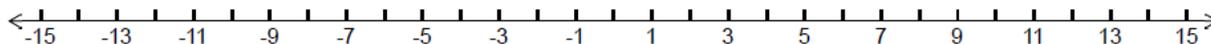
Square Root	Consecutive Integers	Justification
$\sqrt{12}$		
$-\sqrt{45}$		
$-\sqrt{170}$		
$\sqrt{360}$		

A common error students may make is using two values that are two consecutive perfect squares versus two square roots between which the radical falls. For example, saying the $\sqrt{12}$ falls between 9 and 16 instead of 3 and 4. Students may need more practice with the term consecutive integers and remembering to take the square root. Using number lines to discuss consecutive integers gives students a visual understanding.

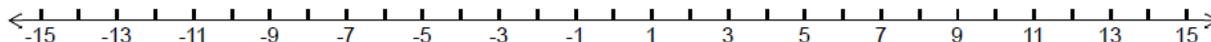
A common error students may make is giving positive integers when it is asking for the negative square root. The Where do they lie? activity gives the students a visual and practice plotting square roots on a number line.

2. Plot each of the following on the number line provided.

a) $\sqrt{15}$



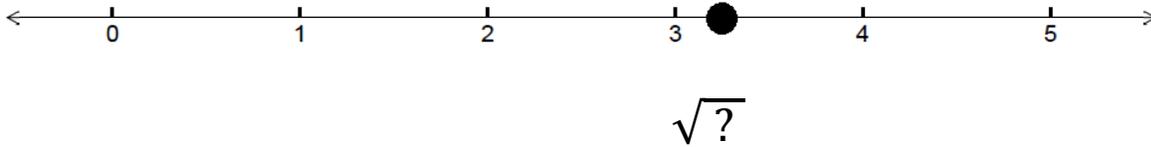
b) $-\sqrt{6}$



A common error students may make is plotting the value at the number under the square root. This may indicate the student is not taking the square root before plotting the point. Students may benefit from additional practice finding perfect and nonperfect square roots. Teachers can use the VDOE Desmos Activity Square Tango to allow students to explore perfect and non-perfect square roots with area models.

A common error for part b is placing the value between -2 and -1 instead of -2 and -3. This may indicate students need more practice comparing and ordering rational numbers. Teachers may refer to Grade 7 Curriculum Framework (see SOL 7.1c).

3. Consider the number line.



What value could be placed underneath the radical to represent the plotted point? Justify your reasoning.

A common error students may make is putting the approximation of the plotted point such as 3.2 instead of the value that would be under the radical to get that approximation. This may indicate students need more practice approximating square roots. Teachers should consider giving students more practice plotting perfect squares on the number line.

4. A square has an area of 200 square feet. Between what two consecutive integers would the length of each side fall? Justify your answer.

A common error students may make is dividing 200 by 4 instead of taking the square root of 200. This may indicate students have a misconception between area and perimeter. They may need more practice with the relationship between area of a square and the length of its sides. Teachers may consider using area models with perfect square areas and lead into area models with non-perfect square areas to explore the relationship between area of a square and the length of its sides.