LESSON MAKER PRO

Between the Ticks

Estimate square roots on a number line

GRADE 7 · 7A.NS.B.11

7A.NS.B.11 "Locate rational approximations of irrational numbers on a number line, compare their sizes, and estimate the values of irrational numbers."

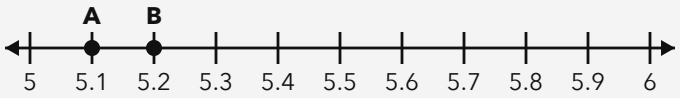
NAME _____ DATE _____

SQUARE AND LOCATE

A square root lies between numbers whose squares are below and above it. Square nearby decimal values to narrow its location on a number line.

WORKED EXAMPLE

Which labeled point is closer to sqrt(26)?

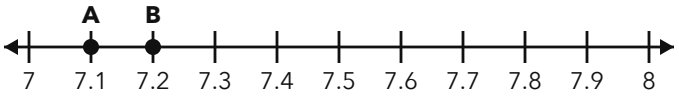


1. $5^2 = 25$ and $6^2 = 36$, so sqrt(26) is between 5 and 6.
2. $5.1^2 = 26.01$, so sqrt(26) is just left of A.
3. B is farther right than A, so A is closer.

Answer: A

PRACTICE 6 problems

1 Which labeled point is closer to sqrt(50)?



ANSWER _____

2 Is sqrt(80) to the left or right of B?



ANSWER _____

3 Estimate sqrt(45) to the nearest tenth.

ANSWER _____

4 Write < or >: sqrt(18) ___ 4.3.

ANSWER _____

5 Between which two consecutive tenths does sqrt(13) lie?

ANSWER _____

_____

6 Order sqrt(8), 2.7, and sqrt(7) from least to greatest.

ANSWER _____

APPLY IT Show your work

1 A gaming club makes a square floor mat with an area of 29 square feet. Estimate its side length to the nearest tenth of a foot.

WORK SPACE

ANSWER _____

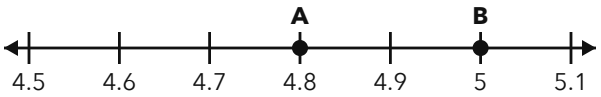
2 A square video screen has an area of 65 square inches. Will it fit in a shelf space that is 8.1 inches wide? Explain with an estimate.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Which point is closer to sqrt(24)? Explain using the midpoint of A and B.



WORK SPACE AND ANSWER

ANSWER KEY # Between the Ticks

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Which labeled point is closer to sqrt(50)?	**A**
2	Is sqrt(80) to the left or right of B?	**Right**
3	Estimate sqrt(45) to the nearest tenth.	**6.7**
4	Write < or >: sqrt(18) ___ 4.3.	**<**
5	Between which two consecutive tenths does sqrt(13) lie?	**3.6 and 3.7**
6	Order sqrt(8), 2.7, and sqrt(7) from least to greatest.	**sqrt(7) < 2.7 < sqrt(8)**

PART 2 · APPLY IT

1. **5.4 feet** The side length is sqrt(29) feet. Since $5.35^2 = 28.6225$ and $5.45^2 = 29.7025$, sqrt(29) rounds to 5.4.
2. **Yes. Its side length is about 8.06 inches, which is less than 8.1 inches.** The screen's side length is sqrt(65) inches. Since $8.1^2 = 65.61$, sqrt(65) is less than 8.1.

CHALLENGE

A. The midpoint is 4.9, and $4.9^2 = 24.01$. Since sqrt(24) is just left of 4.9, it is closer to A.

For estimates, accept equivalent decimal forms such as 5.40 for 5.4. In the challenge, reasoning based on distances from an accurate estimate of sqrt(24) is also valid.