LESSON MAKER PRO

Radical Number Tracks

Approximate square roots and place them in order.

GRADE 8 · 8.NS.1.b

8.NS.1.b "Use rational approximations (to the nearest hundredth) of irrational numbers to compare, order, and locate values on a number line. Radicals may include both positive and negative square roots of values from 0 to 400 yielding an irrational..."

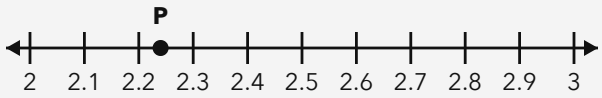
NAME _____ DATE _____

ROUND, THEN COMPARE

Bracket a square root between two nearby hundredths, then square each hundredth to see which is closer. A negative square root is the opposite of the positive value, so it is located to the left of zero.

WORKED EXAMPLE

Point P shows the rounded location of $\sqrt{5}$. Verify the location.



1. $2.23 \times 2.23 = 4.9729$.
2. $2.24 \times 2.24 = 5.0176$.
3. 5 is closer to 5.0176, so $\sqrt{5} \approx 2.24$.

Answer: $\sqrt{5} \approx 2.24$, so P is correct.

PRACTICE 4 problems

1 Use hundredth approximations. Complete the comparison: $-\sqrt{50}$ ___ -7.10

ANSWER _____

2 Which point is closer to $\sqrt{43}$? Write the point and $\sqrt{43}$ to the nearest hundredth.



ANSWER _____

_____

3 Which point is closer to -√90? Write the point and -√90 to the nearest hundredth.



ANSWER _____

_____

4 Order from least to greatest: √120, 10.96, √123.

ANSWER _____

APPLY IT Show your work

1 In a game, a diagonal shortcut is √130 m. Another route is 11.45 m. Which route is shorter, and by about how much?

WORK SPACE

ANSWER _____

2 A square digital-art canvas has an area of 250 cm². Its side length is √250 cm. A frame edge is 15.80 cm. Is the canvas side longer or shorter, and by about how much?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Order -√80, -8.90, and -√79 from least to greatest. Explain using hundredth approximations.

WORK SPACE AND ANSWER

ANSWER KEY

Radical Number Tracks

GRADE 8 · 8.NS.1.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use hundredth approximations. Complete the comparison: -√50 ___ -7.10	**-√50 ≈ -7.07 > -7.10**
2	Which point is closer to √43? Write the point and √43 to the nearest hundredth.	**R; √43 ≈ 6.56**
3	Which point is closer to -√90? Write the point and -√90 to the nearest hundredth.	**A; -√90 ≈ -9.49**
4	Order from least to greatest: √120, 10.96, √123.	**√120 ≈ 10.95 < 10.96 < √123 ≈ 11.09**

PART 2 · APPLY IT

1. **The √130 m shortcut is shorter by about 0.05 m.** √130 ≈ 11.40. Compare 11.40 m and 11.45 m.
2. **The canvas side is longer by about 0.01 cm.** √250 ≈ 15.81. Compare 15.81 cm and 15.80 cm.

CHALLENGE

-√80 ≈ -8.94 < -8.90 < -√79 ≈ -8.89, because farther-left negative numbers are smaller.

Accept equivalent comparison statements that use correct hundredth approximations. For word problems, accept answers stated as approximate because the comparisons use rounded values.