

Number Line Showdown

Compare real numbers by rewriting, estimating, and locating them.

GRADE 8 • 8.NS.1.c

8.NS.1.c "Use multiple strategies (e.g., benchmarks, number line, equivalency) to compare and order no more than five real numbers expressed as integers, fractions (proper or improper), decimals, mixed numbers, percents..."

NAME _____

DATE _____

CHOOSE A COMPARISON TOOL

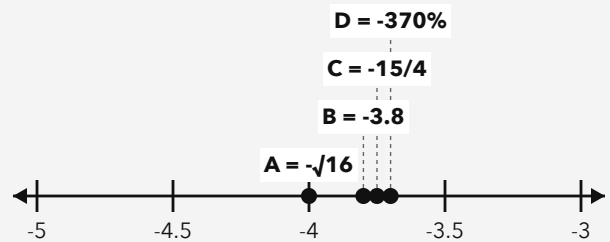
Rewrite numbers in forms that are easy to compare, such as decimals, fractions, or benchmark values. A number farther right on a number line is greater. For negative numbers, a value closer to zero is greater.

WORKED EXAMPLE

Order the values shown on the number line from least to greatest.

1. Rewrite A: $-\sqrt{16} = -4$.
2. Rewrite C: $-15/4 = -3.75$.
3. Rewrite D: $-370\% = -3.70$.
4. Compare the locations from left to right.

Answer: $-\sqrt{16} < -3.8 < -15/4 < -370\%$



PRACTICE 6 problems

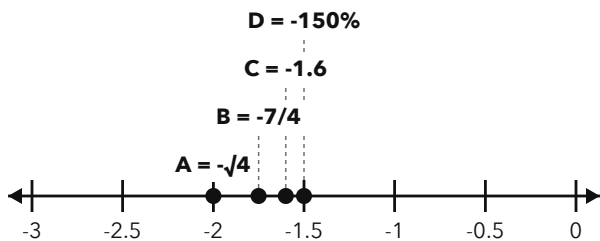
- 1** Order from least to greatest: $3/5$, 0.58 , 61% , $5/8$.

ANSWER _____

- 2** Order from least to greatest: $-\sqrt{144}$, -11.9 , -12 , $-23/2$.

ANSWER _____

- 3** Use the number line. List the point labels from left to right.



ANSWER _____

- 4** Order from least to greatest. Include an equals sign where needed: 3×10^{-3} , 0.003, $1/250$, 0.31%.

ANSWER _____

- 5** Order from greatest to least: $22/7$, 3.15, π , 3.1.

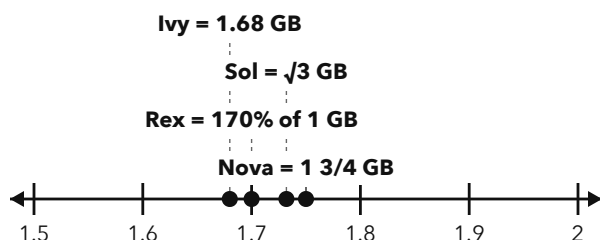
ANSWER _____

- 6** Which value is greatest: $-7/8$, -0.86, $-\sqrt{1}$, or -82%? Write decimal equivalents to justify your choice.

ANSWER _____

APPLY IT Show your work

- 1** A game store shows the storage space needed for four new games on the number line. List the games from least storage space to greatest storage space.



ANSWER _____

- 2** The energy club compares the portion of input energy converted by four phone chargers. The readings are 4.9×10^{-1} , 48%, $\frac{1}{2}$, and $\frac{9}{20}$. Which charger reading is greatest, and which is least?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Order from greatest to least: $-\sqrt{169}$, -1.28×10^1 , $-12 \frac{3}{4}$, -1270% , $-\frac{25}{2}$. In one sentence, explain the equivalent values you used.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Order from least to greatest: $\frac{3}{5}$, 0.58, 61%, $\frac{5}{8}$.	$0.58 < \frac{3}{5} < 61\% < \frac{5}{8}$
2	Order from least to greatest: $-\sqrt{144}$, -11.9, -12, $-\frac{23}{2}$.	$-\sqrt{144} = -12 < -11.9 < -\frac{23}{2}$
3	Use the number line. List the point labels from left to right.	A, B, C, D
4	Order from least to greatest. Include an equals sign where needed: 3×10^{-3} , 0.003, $\frac{1}{250}$, 0.31%.	$3 \times 10^{-3} = 0.003 < 0.31\% < \frac{1}{250}$
5	Order from greatest to least: $\frac{22}{7}$, 3.15, π , 3.1.	$3.15 > \frac{22}{7} > \pi > 3.1$
6	Which value is greatest: $-\frac{7}{8}$, -0.86, $-\sqrt{1}$, or -82%? Write decimal equivalents to justify your choice.	-82% is greatest. $-\frac{7}{8} = -0.875$, $-0.86 = -0.86$, $-\sqrt{1} = -1$, and $-82\% = -0.82$.

PART 2 • APPLY IT

- Ivy, Rex, Sol, Nova** Rewrite the values as decimals: Ivy is 1.68, Rex is 1.70, Sol is about 1.73, and Nova is 1.75. Order the decimal values from least to greatest.
- Greatest: $\frac{1}{2}$. Least: $\frac{9}{20}$.** Convert the readings to decimals: 0.49, 0.48, 0.50, and 0.45. Compare the four decimal values.

CHALLENGE

$-\frac{25}{2} > -1270\% > -12\frac{3}{4} > -1.28 \times 10^1 > -\sqrt{169}$. I used $-\frac{25}{2} = -12.5$, $-1270\% = -12.7$, $-12\frac{3}{4} = -12.75$, $-1.28 \times 10^1 = -12.8$, and $-\sqrt{169} = -13$.

Accept equivalent decimal, fraction, percent, or benchmark reasoning when the order is correct. For π , accept a correct comparison based on π being about 3.14.