

Plot It Right

Place rational numbers with confidence.

GRADE 6 • 6.PAR.8.1

6.PAR.8.1 "Locate and position rational numbers on a horizontal or vertical number line; find and position pairs of integers and other rational numbers on a coordinate plane."

NAME _____

DATE _____

FIND THE RIGHT SPOT

On a number line, numbers increase as you move right or up, and decrease as you move left or down. To place a fraction, find the whole numbers around it, then split the space into equal parts. On a coordinate plane, move along the x-axis first, then move along the y-axis.

WORKED EXAMPLE

Place $-7/3$ on a horizontal number line.

1. Change $-7/3$ to $-2 \frac{1}{3}$.
2. $-2 \frac{1}{3}$ lies between -3 and -2 .
3. Divide the space from -3 to -2 into 3 equal parts.
4. Mark the first tick to the left of -2 .

Answer: $-2 \frac{1}{3}$, or $-7/3$

PRACTICE 6 problems

- 1** Plot $5/8$ on a horizontal number line.
Between which two integers is it located?

ANSWER _____

- 2** Put these numbers in order from least to greatest, then plot them on a number line:
 $-5/4$, $-1/4$, $1/2$.

ANSWER _____

- 3** Point C is on a vertical number line. It is $2/5$ unit below 0. What number labels point C?

ANSWER _____

- 4** Plot D = $(-4, 6)$ on a coordinate plane. In which quadrant is D?

ANSWER _____

- 5** Plot E = $(1 \frac{1}{2}, -2 \frac{1}{2})$ on a coordinate plane. In which quadrant is E?

ANSWER _____

- 6** Plot F = $(-4/5, -11/6)$ on a coordinate plane. In which quadrant is F?

ANSWER _____

APPLY IT Show your work

1

A skateboard park uses a vertical scale with ground level at 0. A rider is $\frac{5}{8}$ meter above ground, and a camera is $\frac{2}{5}$ meter below ground. Plot both locations on a vertical number line. Which location is higher?

WORK SPACE

ANSWER _____

2

On a coding club map, a treasure icon is at $(-1\frac{1}{4}, 2\frac{1}{2})$, and a robot icon is at $(\frac{5}{8}, -\frac{1}{2})$. Plot both points. Name the quadrant of each icon and tell which icon is farther left.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A game token is placed exactly halfway between $M = (-\frac{5}{8}, \frac{5}{4})$ and $N = (\frac{1}{2}, -\frac{1}{4})$. Find the coordinates of the token. Explain how you found each coordinate.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Plot $\frac{5}{8}$ on a horizontal number line. Between which two integers is it located?	Between 0 and 1, $\frac{5}{8}$ of the way to the right from 0.
2	Put these numbers in order from least to greatest, then plot them on a number line: $-\frac{5}{4}$, $-\frac{1}{4}$, $\frac{1}{2}$.	$-\frac{5}{4}$, $-\frac{1}{4}$, $\frac{1}{2}$
3	Point C is on a vertical number line. It is $\frac{2}{5}$ unit below 0. What number labels point C?	$-\frac{2}{5}$
4	Plot D = $(-4, 6)$ on a coordinate plane. In which quadrant is D?	Quadrant II
5	Plot E = $(1\frac{1}{2}, -2\frac{1}{2})$ on a coordinate plane. In which quadrant is E?	Quadrant IV
6	Plot F = $(-\frac{4}{5}, -1\frac{1}{6})$ on a coordinate plane. In which quadrant is F?	Quadrant III

PART 2 • APPLY IT

- Rider: $\frac{5}{8}$. Camera: $-\frac{2}{5}$. The rider is higher.** Place $\frac{5}{8}$ above 0 and $-\frac{2}{5}$ below 0. Any positive number is higher than any negative number.
- Treasure: Quadrant II. Robot: Quadrant IV. The treasure icon is farther left.** The treasure has a negative x-coordinate and positive y-coordinate, so it is in Quadrant II. Its x-coordinate is less than the robot's positive x-coordinate, so it is farther left.

CHALLENGE

$(-\frac{1}{16}, \frac{1}{2})$. The x-coordinate is halfway between $-\frac{5}{8}$ and $\frac{1}{2}$, and the y-coordinate is halfway between $\frac{5}{4}$ and $-\frac{1}{4}$.

Accept equivalent fractions and mixed-number forms, such as $-\frac{5}{4}$ or $-1\frac{1}{4}$. For plotted points, accept a correct location even if the student uses a different scale with equal intervals.