

Partial credit is based on work shown!

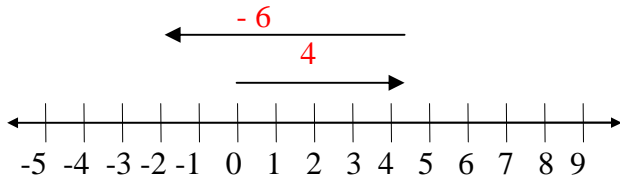
4pts

1. Illustrate $4 - 6$ using a number line and a set model. Be sure to indicate your answer.

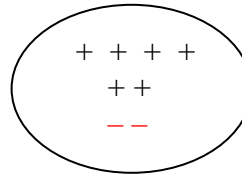
a. number line

$4 - 6 = -2$

b. set model with + - signs



Begin with 4 + signs, then add 2 + signs and 2 negative signs.

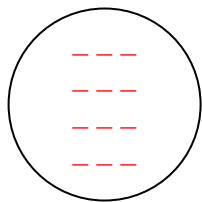


Then remove 6 + signs

4pts

2. Illustrate $4 \cdot (-3)$ using

a. a set model

Four sets of $-3 = -12$ b. continue this pattern to show what $4 \cdot (-3) =$

$4(3) = 12$

$4(2) = 8$

$4(1) = 4$

$4(0) = 0$

$4(-1) = -4$

$4(-2) = -8$

$4(-3) = -12$

4pts

3. a. What is the set of integers? $\{ \dots, -3, -2, -1, 0, 1, 2, 3, 4, \dots \}$

All whole numbers and their negatives.

b. What is the set of rational numbers?

The set of all numbers $\frac{a}{b}$, such that a, b are integers, with b not equal to zero.The set of numbers formed by the ratio of two integers. (The denominator cannot equal zero)
As decimals these numbers will be terminating or infinitely repeating decimals.

6pts

4. a. Is 7 a rational number? YES Explain how it does or doesn't fit the definition of a rational number.

$$7 = \frac{7}{1} = \frac{14}{2} = \frac{-21}{-3} = \text{etc} \quad \text{That is, 7 can be written as the ratio of two integers.}$$

b. Is $-3\frac{2}{5}$ a rational number? YES Explain how it does or doesn't fit the definition of a rational number.

$$-3\frac{2}{5} = -\left[3 + \frac{2}{5}\right] = -\left[\frac{15}{5} + \frac{2}{5}\right] = -\frac{17}{5} \quad \text{Thus, } -3\frac{2}{5} \text{ can be written as the ratio of two integers.}$$

2pts

5. Write a rational number that is between 7.858585... and 7.86666666...

This could be any terminating or infinitely repeating decimal between these numbers.

For example: 7.86 or 7.863 or 7.86186118611186111 ... or 7.8622222 ... etc.