

Let's work together. 

The Real Number System

1. Classify each number as rational or irrational. Justify your answer. Use the first example to help you.

Number	Rational or Irrational
0.9	Rational <ul style="list-style-type: none">The number 0.9 can be written as a fraction in which the numerator and denominator are both integers. $0.9 = \frac{9}{10}$The number 0.9 is a terminating decimal. All terminating decimals are rational.
-17	
0	
$-\frac{7}{8}$	
$5.\bar{6}$	
8.949949994...	

2. Amy says that the number $\frac{\sqrt{3}}{10}$ is rational because it's a fraction. Do you agree or disagree with Amy? Explain your reasoning.

For #'s 3 – 5, tell whether the given statement is true or false. Explain why.

3. All whole numbers are rational numbers: *True or False*

Explanation:

4. All rational numbers are integers: *True or False*

Explanation:

5. Some real numbers are irrational: *True or False*

Explanation:

6. Which sequence of words best describes the set of numbers listed below?

$$\left\{ 6\frac{3}{5}, -97, 0.5\bar{1}, 31, \sqrt{12} \right\}$$

- A. rational, integer, irrational, natural, irrational
- B. rational, irrational, rational, whole, irrational
- C. rational, integer, rational, natural, real
- D. real, integer, rational, natural, rational

Properties of Real Numbers

7. Write the letter of the property that is demonstrated by each numerical statement below.

- | | |
|---|--|
| A. Commutative Property of Addition | F. Identity Property of Addition |
| B. Commutative Property of Multiplication | G. Identity Property of Multiplication |
| C. Associative Property of Addition | H. Inverse Property of Addition |
| D. Associative Property of Multiplication | I. Inverse Property of Multiplication |
| E. Distributive Property | J. Zero Product Property |

_____ $7 \times 0 = 0$

_____ $15 + (11 + 9) = (15 + 11) + 9$

_____ $\frac{7}{8} \times \frac{8}{7} = 1$

_____ $3\frac{1}{7} + 0 = \frac{22}{7}$

_____ $(8 + 4) \times 5 = (4 + 8) \times 5$

_____ $235 \times 1 = 235$

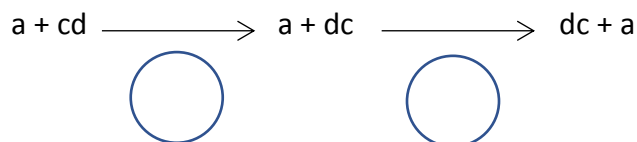
_____ $4(11 - 7) = 4(11) - 4(7)$

_____ $(1 + 7) \times (5 + 6) = (5 + 6) \times (1 + 7)$

_____ $28 + (-28) = 0$

8. Does the commutative property work under division? Justify your response with an example.

9. The following flow diagram shows that the expression $a + cd$ is equivalent to the expression $dc + a$.



Fill in each circle with the appropriate symbol below that demonstrates the property used.

$C+$ (for the "Commutative Property of Addition")

$C\times$ (for the "Commutative Property of Multiplication")

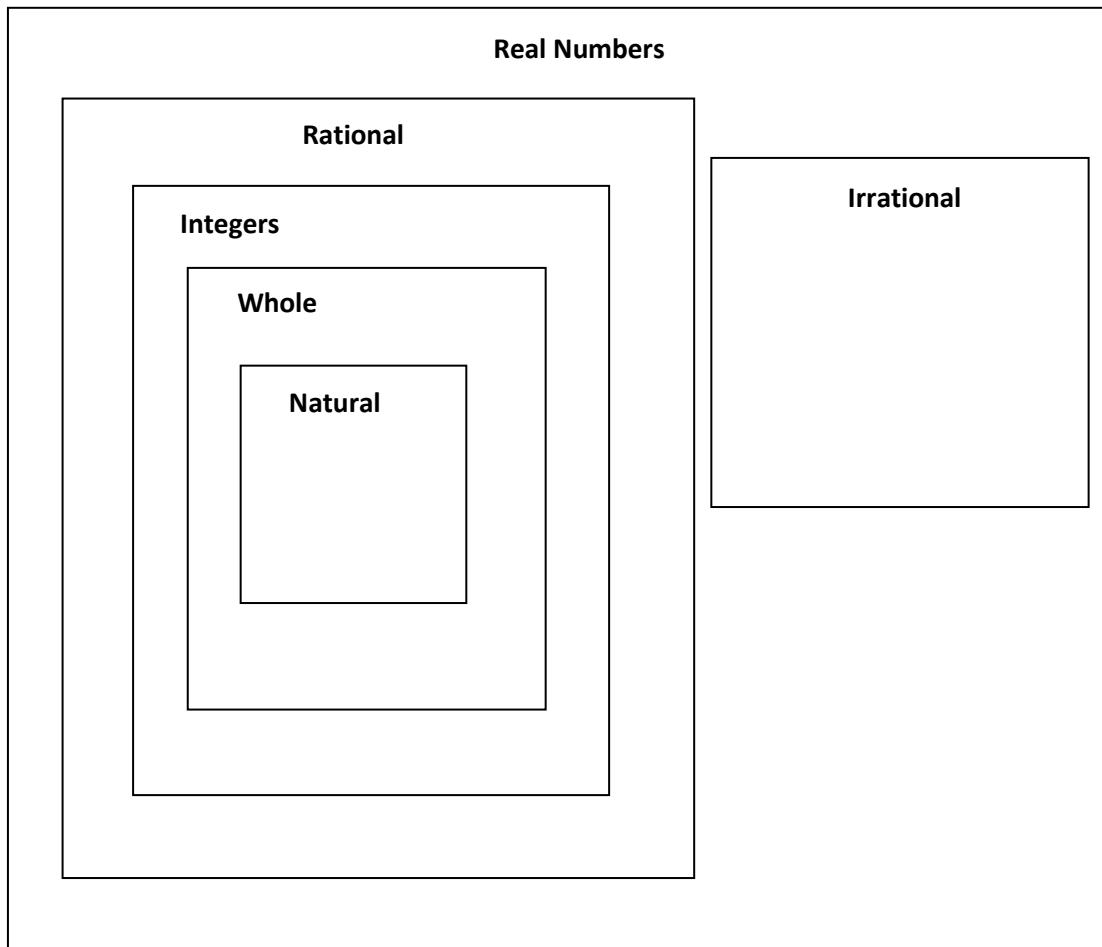
10. Frank says that the additive inverse of a number is always negative. Do you agree or disagree with this statement? Justify your response.

HW #

1. Classify each number as rational or irrational. Justify your answer.

Number	Rational <i>or</i> Irrational
5	
-7.35	
-2	
$\sqrt{2}$	

2. Using the Venn diagram below of the Real Number System, place each number in its **most specific set**.



Place these numbers into the boxes.

-7 8

π $-\frac{5}{9}$

0 $\sqrt{100}$

$1.\bar{3}$ $\sqrt{15}$

3. $4 + 9 = 9 + 4$ is an example of which property?

- (1) identity property of addition
- (2) associative property of addition
- (3) commutative property of addition
- (4) distributive property

4. Which is an example of the associative property of multiplication?

- (1) $6 + 7 = 7 + 6$
- (2) $6(7 + 3) = 6(7) + 6(3)$
- (3) $2 \times (8 \times 3) = (2 \times 8) \times 3$
- (4) $(4 \times 9) \times 3 = 3 \times (4 \times 9)$

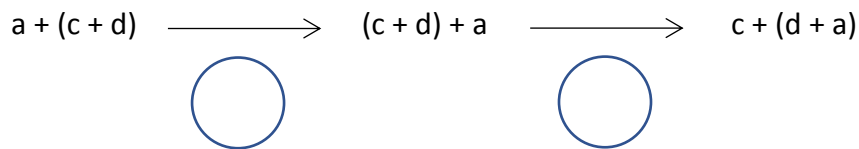
5. What property is illustrated by the statement $-5 + 5 = 0$?

- (1) identity property of addition
- (2) associative property of addition
- (3) commutative property of addition
- (4) inverse property of addition

6. Which of the following equations illustrates an identity property?

- (1) $5(2 + 3) = 10 + 15$
- (2) $11 + 0 = 11$
- (3) $22 + (-22) = 0$
- (4) $\frac{2}{11} \times \frac{11}{2} = 1$

7. The following flow diagram shows that the expression $a + (c + d)$ is equivalent to the expression $c + (d + a)$.



Fill in each circle with the appropriate symbol below that demonstrates the property used.

C+ (for the "Commutative Property of Addition")

A+ (for the "Associative Property of Addition")