The Real Number System

In each group of the numbers listed below, four of the numbers belong to a specific set of the Real Number System and one number does not.

a) Identify which number does not belong to the set.

b) Name the set of numbers to which the four remaining numbers belong.

1) $-8 \quad 0 \quad \sqrt{16} \quad -\sqrt{25} \quad \frac{1}{2}$

a) _____

b) _____

2) $-\frac{3}{4} \quad 0.\overline{2} \quad 0.62835 \quad \sqrt{7} \quad 0$

a) _____

b) _____

3) $\frac{16}{2} \quad \sqrt{49} \quad \frac{0}{8} \quad -14 \quad 6$

a) _____

b) _____

4) $\sqrt{17} \quad 0.\overline{3} \quad 0.343443444\ldots \quad \sqrt[3]{29} \quad \pi$

a) _____

b) _____

5) $0.375 \quad \frac{9}{0} \quad \frac{2}{3} \quad 0.7 \quad \sqrt{25}$

a) _____

b) _____

6) $\frac{10}{2} \quad \sqrt{4} \quad -6 \quad \sqrt[3]{1} \quad 12$

a) _____

b) _____

ALGEBRA – PRACTICE

1) Fill in the blank with one of the symbols $\subset$ or $\in$ to make the statement correct.

a) $\{3\}$ _____ $\{1, 3, 5, 7\}$

b) $\varnothing$ _____ $\{2, 3, 5, 8\}$

c) 0_____ $\{0\}$

d) $\{3, 6, 9\}$ _____ $\{9, 3, 6\}$

e) 8 _____ $\{2, 4, 6, 8\}$

f) $\{8\}$_____ $\{2, 4, 6, 8\}$

2) Graph each of the sets of numbers described below.

a) {the integers between – 3 and 8}

b) {the real numbers greater than 10 and less than – 3}

c) {the positive real numbers}

d) {the whole numbers less than 2}

e) {the real numbers greater than or equal to – 5}

3) Yes / No?

a) {a, b, c} has 7 subsets.

b) $\varnothing \subset \{1, 3, 5\}$

c) {Real Numbers} $\subset$ {Rational Numbers}

d) All Integers are Whole Numbers.

e) The irrational numbers can be written in roster notation.

f) The set of Real numbers, such that $x < 0$ contains the number 0.

4) Fill in the blank with the work ALL, Some or No to make the statement correct.

a) _____ rational numbers are real numbers.

b) _____ whole numbers are integers.

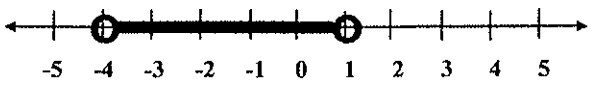
c) _____ irrational numbers are rational numbers.

d) _____ natural numbers are positive integers.

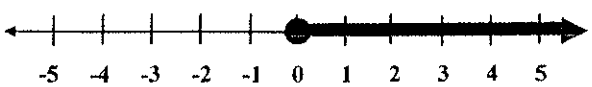
e) _____ real numbers can be found on the number line.

5) Use set builder notation to describe each graph.

a)



b)



c)

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In each group of the numbers listed below, four of the numbers belong to a specific set of the Real Number System and one number does not.

a) Identify which number does not belong to the set.

b) Name the set of numbers to which the four remaining numbers belong.

1) -8 0 $\sqrt{16}$ $-\sqrt{25}$ $\frac{1}{2}$

-8 0 4 -5 $1/2$

a) $1/2$

b) integers

2) $-\frac{3}{4}$ $0.\overline{2}$ 0.62835 $\sqrt{7}$ 0

a) $\sqrt{7}$

b) rational

3) $\frac{16}{2}$ $\sqrt{49}$ $\frac{0}{8}$ -14 6

8 7 0 -14 6

a) -14

b) whole numbers

4) $\sqrt{17}$ $0.\overline{3}$ $0.343443444\ldots$ $\sqrt[3]{29}$ π

a) $0.\overline{3}$

b) irrational

5) 0.375 $\frac{9}{0}$ $\frac{2}{3}$ 0.7 $\sqrt{25}$

a) $\frac{9}{0}$

b) rational

6) $\frac{10}{2}$ $\sqrt{4}$ -6 $\sqrt[3]{1}$ 12

5 2 -6 1 12

a) -6

b) natural numbers

ALGEBRA – PRACTICE

1) Fill in the blank with one of the symbols $\subset$ or $\in$ to make the statement correct.

a) $\{3\}$ $\subset$ $\{1, 3, 5, 7\}$

b) $\varnothing$ $\subset$ $\{2, 3, 5, 8\}$

c) 0 $\in$ $\{0\}$

d) $\{3, 6, 9\}$ $\subset$ $\{9, 3, 6\}$

e) 8 $\in$ $\{2, 4, 6, 8\}$

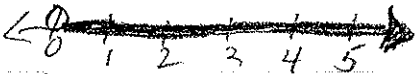
f) $\{8\}$ $\subset$ $\{2, 4, 6, 8\}$

2) Graph each of the sets of numbers described below.

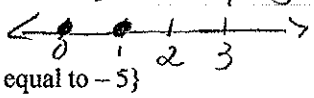
a) {the integers between – 3 and 8}

b) {the real numbers greater than 10 and less than – 3} $\varnothing$

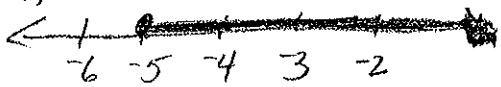
c) {the positive real numbers}



d) {the whole numbers less than 2}



e) {the real numbers greater than or equal to – 5}



3) Yes / No?

a) {a, b, c} has 7 subsets. No

b) $\varnothing \subset \{1, 3, 5\}$ Yes

c) {Real Numbers} $\subset$ {Rational Numbers} No

d) All Integers are Whole Numbers. No

e) The irrational numbers can be written in roster notation. No

f) The set of Real numbers, such that $x < 0$ contains the number 0. No

4) Fill in the blank with the work ALL, Some or No to make the statement correct.

a) All rational numbers are real numbers.

b) All whole numbers are integers.

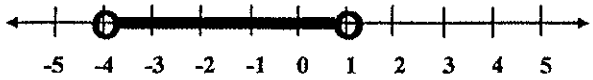
c) No irrational numbers are rational numbers.

d) All natural numbers are positive integers.

e) All real numbers can be found on the number line.

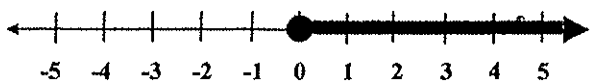
5) Use set builder notation to describe each graph.

a)



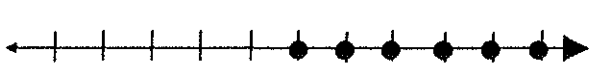
$\{x : -4 < x < 1,\ x \in \mathbb{R}\}$

b)



$\{x : x \geq 0,\ x \in \mathbb{R}\}$

c)



$\{x : x \geq 0,\ x \in W\}$ * vary

or $x \in J$