MA-8 Topic 1 Test REVIEW NAME: _____

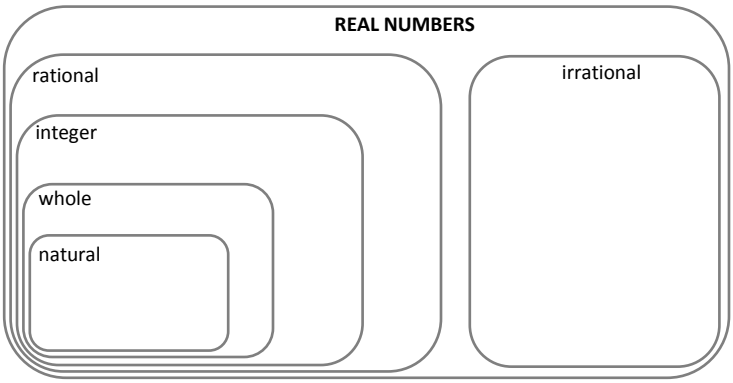
1) Classify the following numbers and write them in the most appropriate region in the Venn diagram.

3.14 17 $0.\overline{09}$ $2.121121112\ldots$ -5^2

$\frac{1}{3^{-2}}$ $(-3)^{-2}$ $\sqrt[3]{64}$ 3.15×10^{-3}

$\sqrt{3}$ $\sqrt{\frac{9}{81}}$ π $0.0\overline{5}$ $5{,}812{,}342^0$

-1^9 $\sqrt[3]{25}$ $\frac{22}{7}$ -5.1



2) List the Real numbers from above in the following two ways:

Rational: _____

Irrational: _____

3) Classify each number as rational or irrational.

π $5.\overline{3}$ $\sqrt{36}$

$\sqrt{8}$ $-\frac{3}{7}$

Rational	Irrational

4) How would you classify the number 121?

Ⓐ perfect square

Ⓑ perfect cube

Ⓒ both a perfect square and a perfect cube

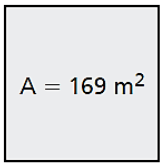
Ⓓ neither a perfect square nor a perfect cube

5) Approximate the square root or cube root of the following numbers.

A) $\sqrt{37}$ B) $\sqrt[3]{214}$ C) $\sqrt{83}$ D) $\sqrt[3]{-9}$

6) Samantha runs one mile in $10.\overline{2}$ minutes. How can you express the repeating decimal $0.\overline{2}$ as a fraction?

7) What is the side length, *s*, of the square?



8) Taj asked 27 classmates whether they know how to write calligraphy. He used a calculator to compare the number of classmates who said yes to the total number he surveyed. The calculator showed the result as 0.1111111111.

Part A

Write this number as a fraction.

Part B

How many students know how to write calligraphy?

9) Solve the equation $x^2 = 26$.

Ⓐ $x = \pm\sqrt{26}$

Ⓑ $x = \sqrt{26}$

Ⓒ $x = \pm 13$

Ⓓ $x = 13$

10) A cube-shaped box has a volume of 125 cubic inches. If the box is packed full of cubes with edge lengths of 1 inch, how many cubes can fit along one side of the box?

Ⓐ 5 cubes

Ⓑ 10 cubes

Ⓒ 25 cubes

Ⓓ 125 cubes

11) Evaluate the expression for $x = 1$ and $y = 5$.

$$16x^0 + 5x^2 \cdot y^{-1}$$

12) Draw lines to connect each expression on the left with an equivalent expression on the right.

$(y^3)^2$	y^5
y^{-2}	y^8
$y^8 \div y^3$	y^6
$y^4 \cdot y^4$	$\frac{1}{y^2}$

13) Express the number 3,440,000 in scientific notation.

Ⓐ 3.44×10^{-6}

Ⓑ 3.44×10^{-5}

Ⓒ 3.44×10^{5}

Ⓓ 3.44×10^{6}

14) Rewrite 3^{-7} using a positive exponent.

14)

15) Find $(1.6 \times 10^7) + (3.8 \times 10^8)$. Express your answer in scientific notation.

15)

16) A large oak tree has 2×10^5 leaves during its lifespan. A large forest can have about 5×10^3 oak trees. Approximately how many leaves would be in the forest during the lifespan of those trees?

16)

17) Circle the numbers that are **written in standard form**, *then <u>write them in Scientific Notation</u>*.

3.24×10^6 7,510,900,000,000 0.00008192 7.15×10^{-5}

18) Circle the numbers that are **written in Scientific Notation**, *then <u>write them in standard form</u>*.

4,281,000,000,000 8.67×10^{-8} 9.15×10^7 0.000000753

19) Write (6.37×10^{-2}) in standard form.

A) 0.00637 C) 637

B) 0.0637 D) 63,700

20) Which is the best example of a number written in scientific notation?

A) 0.5×10^{5} C) 5.367×10^{-3}

B) 0.1254 D) 12.5×10^{2}

21) Find the quotient: $\frac{(5.0 \times 10^{4})}{(2.5 \times 10^{2})}$

A) 2.0×10^{2} C) 0.5×10^{6}

B) 12.5×10^{2} D) 5.0×10^{6}

22) Find the product: $(2.1 \times 10^{-3}) * (2.0 \times 10^{2})$

A) 4.2×10^{-5} C) 4.2×10^{-6}

B) 4.2×10^{6} D) 4.2×10^{-1}

23) Find the difference: $(2.5 \times 10^{4}) - (1.5 \times 10^{3})$

A) 1.0×10^{1} C) 2.35×10^{4}

B) 1.0×10^{7} D) 2.35×10^{7}

24) Find the sum: $(3.0 \times 10^{4}) + (2.5 \times 10^{5})$

A) 0.5×10^{5} C) 3.25×10^{5}

B) 2.8×10^{5} D) 5.5×10^{9}

25) What is (4.01×10^{0}) written in Standard Form?

A) 0.401 C) 4.01

B) 4.001 D) 40.1

26) Which could be the common exponent used for the power of ten when finding the sum of $(4.15 \times 10^{-3}) + (5.28 \times 10^{6})$?

A) 3 C) 5.28

B) 4.15 D) 6

27) For which value of k is the equation below true? $4{,}522{,}800{,}000 = 4.5228 \times 10^{k})$

A) 5 C) 9

B) 8 D) 10

28) The leading factor of a number written in correct Scientific notation is between which numbers?

A) $1\ and\ 10$ C) $Both\ A\ \&\ B$

B) $-1\ and\ -10$ D) $None\ of\ these$

29) Write the power below using a positive exponent.

$$\frac{1}{6^{-3}}$$

30) Solve the following equations for x.

A) $x^{2} = 121$ B) $x^{3} = -64$