Name **Key**   Pd _____ Date _____

Math 8 Unit 2 Real Review

Show work OR write an explanation of how you arrived at your answer. Work or explanation is required!! Write the letter of your final answers in the answer box.

1. Which is a rational number, an integer and a whole number?

$\quad$ A $-\dfrac{5}{4}$ $\quad$ B -1.03 $\quad$ C $-(7^2)$ $\quad$ D $\sqrt{42}$

$\quad\quad\quad\quad\quad\quad$ -49

2. Which number is irrational?

$\quad$ A. 1.6739 $\quad$ B. $\sqrt{14}$ $\quad$ C. $6.\overline{23}$ $\quad$ D. $\dfrac{87}{7}$

$\quad$ terminating $\quad\quad\quad\quad\quad$ repeating $\quad$ whole

3. Which number is rational?

$\quad$ A. π $\quad$ B. $\sqrt{5}$ $\quad$ C. -9 $\quad$ D. $2\sqrt{6}$

4. Which number is an integer?

$\quad$ A. $\sqrt{16}$ $\quad$ B. $\sqrt{27}$ $\quad$ C. $-\sqrt{10}$ $\quad$ D. $\sqrt{117}$

5. Which is a proper classification of -9.21?

$\quad$ A. Rational and negative
$\quad$ B. Irrational and decimal
$\quad$ C. Irrational and negative
$\quad$ D. Rational and integer

6. Which is a proper classification of -6.789......?

$\quad$ A. Rational and whole
$\quad$ B. Rational and integer
$\quad$ C. Irrational and integer
$\quad$ D. Irrational and real

7. Which of the following answers describes the set of numbers that $\sqrt[3]{-64}$ belongs to?

$\quad$ A. Prime
$\quad$ B. Integers only
$\quad$ C. Irrational only
$\quad$ D. Both integers and rational

8. Which is an irrational number?

$\quad$ A $-7.171771777...$ $\quad$ B $\sqrt{49}$ $\quad$ C $\sqrt{-49}$ $\quad$ D $-\sqrt{49}$

9. Which name does *not* apply to $\dfrac{\sqrt{16}}{2}$?

$\quad$ A integer $\quad\quad\quad$ B irrational number
$\quad$ C rational number $\quad$ D real number

10. Which number is between 14 and 15?

$\quad$ A. $\sqrt{200}$ $\quad$ B. $\sqrt{190}$ $\quad$ C. $\sqrt{100}$ $\quad$ D. $\sqrt{228}$

Answers
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

11. Describe the similarities & differences between irrational & rational numbers.

Both real numbers.

Rational #'s have terminating or repeating decimal forms. Irrational #'s do not.

12. Simplify

$6739 \cdot \sqrt{14}$

$\sqrt{9} = 3$
$\sqrt{14} \approx 3.7$
$\sqrt{16} = 4$

$$\begin{array}{r} 0.714 \\ 7\overline{)5.000} \\ -49\downarrow \\ 10 \\ -7\downarrow \\ 30 \end{array}$$

$$\begin{array}{r} 6739 \\ \times 3.7 \\ \hline 47173 \\ +20217 \times \\ \hline 24934.3 \end{array}$$

(24934.3)

13. Simplify

$.8\overline{3} + 4$

$10x = 8.33$
$-x = .83$
$9x = 7.50$
$\frac{9}{9} \quad \frac{9}{9}$

$\frac{7.5 \times 10}{9 \times 10} = \frac{75}{90} + 4 = 4\frac{75}{90}$

$4\frac{5}{6}$

14. Simplify

$4(.\overline{35})$

$100x = 35.35$
$x = .35$
$99x = 35$
$\frac{99x}{99} = \frac{35}{99}$

$\frac{35}{99} \cdot \frac{4}{1} = \frac{140}{90} = \frac{14}{9}$ or $1\frac{5}{9}$

15. Convert to fraction

$x = .\overline{46}$

$100x = 46.46$
$-x = .46$
$99x = 46$
$\frac{99x}{99} = \frac{46}{99}$

$x = \frac{46}{99}$

16. Convert to fraction

$x = 3.\overline{12}$

$100x = 312.12$
$-x = 3.12$
$99x = 309$
$\frac{99x}{99} = \frac{309}{99}$

$x = \frac{309}{33} = 9\frac{12}{33} = 9\frac{4}{11}$

17. Convert to fraction

$x = 4.\overline{285}$

$x = \frac{4243}{900} = 4\frac{643}{900}$

$100x = 428.585$
$-x = 4.285$
$99x = 424.300 \times 100 = \frac{4243}{990}$
$\frac{99}{99} \quad \frac{99}{99} \quad \times 100 = \frac{4243}{990}$

18. Convert to fraction

$x = .\overline{723}$

$1000x = 723.723$
$-x = .723$
$999x = 723$
$\frac{999x}{999} = \frac{723}{999}$

$x = \frac{723}{999} = \frac{241}{333}$

19. Place the following on a number line.

$\sqrt{12} \approx 3. \left(\frac{3}{7}\right) \times 3.4$
$\sqrt{13} \approx 3. \left(\frac{6}{7}\right) \approx 3.9$

$3. \quad 3. \quad 4.3 \quad 3 \quad 2.8$

$\sqrt{12}, \sqrt{15}, 4.3, \sqrt{9}, \frac{14}{5}$
$\sqrt{9} \quad \sqrt{16} \quad \sqrt{9} \quad \sqrt{16}$

$$\begin{array}{r} .85 \\ 7\overline{)6.00} \\ -56\downarrow \\ 40 \\ 35 \end{array}$$

$$\begin{array}{r} .42 \\ 7\overline{)3.00} \\ -28\downarrow \\ 20 \end{array}$$

$\frac{14}{5} \qquad \sqrt{9} \qquad \sqrt{12} \qquad \sqrt{15} \qquad 4.3$

2.8 2.9 3 3.1 3.2 3.3 2.4 3.5 3.6 3.7 3.8 3.9 4 4.1 4.2 4.3
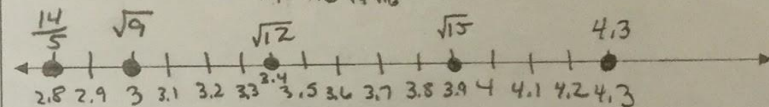
20. Place the following on a number line.

$8.1 \quad 7.7 \quad 8.5 \quad 9.25 \quad 9.3$

$\sqrt{65}, \sqrt{60}, 8.5, \frac{37}{4}$
$\sqrt{64} \quad \sqrt{81} \quad \sqrt{49} \quad \sqrt{64}$

$\sqrt{60} \qquad \sqrt{65} \qquad\qquad 8.6 \qquad\qquad \frac{37}{4}$

7.7 7.8 7.9 8.0 8.1 8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 9.0 9.1 9.2 9.3
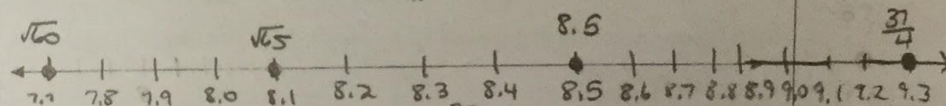
$\sqrt{65} \approx 8.\left(\frac{1}{17}\right) \approx 8.1$

$$\begin{array}{r} .05 \\ 17\overline{)1.00} \\ -85 \\ 15 \end{array}$$

$$\begin{array}{r} .73 \\ 15\overline{)11.00} \\ -10\,5\downarrow \\ 50 \\ -45 \\ 5 \end{array}$$

$\sqrt{60} \approx 7.\left(\frac{11}{15}\right) \approx 7.7$

Answers
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. ←
20. ←