

Name _____
Mrs. Roumbos

Date _____
8R Per _____

The Number System Test
Review

Matching:

- | | | |
|-----------------------|-----|--|
| 1) Rational Numbers | ___ | A. Non-terminating, non repeating decimals |
| 2) Integers | ___ | B. Terminating & repeating decimals |
| 3) Whole Numbers | ___ | C. { 0, 1, 2, 3, ... } |
| 4) Irrational Numbers | ___ | D. { ... -3, -2, -1, 0, 1, 2, 3 ... } |

Fill Ins:

- 5) _____ numbers are integers that are exactly divisible by 2.
- 6) _____ numbers are integers that have a remainder, 1, when divided by 2.
- 7) List the first 4 Perfect Squares: _____.

State whether the numbers are Rational or Irrational and say why

8) $\frac{1}{2}$ _____

9) π _____

10) $\sqrt{81}$ _____

11) .2334763... _____

12) .7 _____

13) $\sqrt{10}$ _____

Convert the following fractions to decimals (use long division)

14) $\frac{2}{3}$

15) $\frac{3}{4}$

Convert the following decimals to fractions (in simplest form)

16) .7

17) .25

18) .88888 $\bar{8}$...

19) .343434 $\bar{34}$...

Simplify the following

20) 4^2

21) 7^3

22) 6^2

23) 3^3

24) $\sqrt{49}$

25) $-\sqrt{100}$

26) $\sqrt[3]{8}$

27) $\sqrt[3]{64}$

Compare the following using $<$, $>$, or $=$ (nearest hundredth)

28) $\sqrt{7}$ _____ 3

29) $\frac{5}{2}$ _____ $\sqrt{5}$

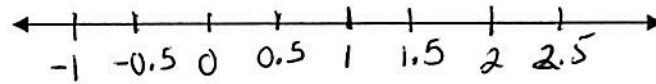
30) .35 _____ $\frac{7}{20}$

Order from least to greatest (nearest hundredth)

31) $\sqrt{3}$, $-\frac{7}{4}$, 2.13 _____

Plot the set of numbers on a number line (nearest hundredth)

32) $\sqrt{1}$, 0.1 , $-\frac{1}{10}$



The square root of the following number is between what 2 integers? Show work

33) $\sqrt{8}$

34) $\sqrt{40}$

Estimate the square root to the nearest whole number. Show work

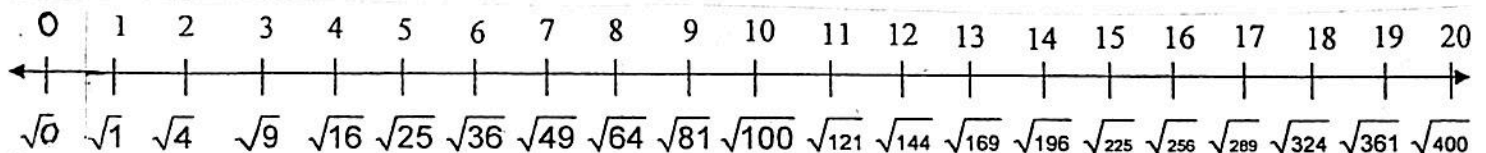
35) $\sqrt{17}$

Estimate the square root to the nearest tenth. Show work

36) $\sqrt{40}$

Estimate the following to the nearest hundredth. Show work

37) $\sqrt{7} + \sqrt{3}$



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|-----------------------|----------|--|
| 1) Rational Numbers | <u>B</u> | A. Non-terminating, non repeating decimals |
| 2) Integers | <u>D</u> | B. Terminating & repeating decimals |
| 3) Whole Numbers | <u>C</u> | C. { 0, 1, 2, 3, ... } |
| 4) Irrational Numbers | <u>A</u> | D. { ... -3, -2, -1, 0, 1, 2, 3 ... } |

Fill Ins:

- 5) Even numbers are integers that are exactly divisible by 2.
- 6) Odd numbers are integers that have a remainder, 1, when divided by 2.
- 7) List the first 4 Perfect Squares: { 0, 1, 4, 9 }
0² 1² 2² 3²

State whether the numbers are Rational or Irrational and say why

- 8) $\frac{1}{2}$ Rational
(fraction)
- 9) π Irrational (NON-terminating & NON-repeating decimal)
- 10) $\sqrt{81} = 9$ Rational
(whole #)
- 11) .2334763... Irrational (NON-terminating & NON-repeating decimal)
- 12) .7 Rational
(Terminating decimal)
- 13) $\sqrt{10} = 3.16227766...$ Irrational (NON-terminating & NON-repeating decimal)

Convert the following fractions to decimals (use long division)

14) $\frac{2}{3}$

$\boxed{.66}$

$$\begin{array}{r} 0.66 \\ 3 \overline{) 2.00} \\ \underline{-18} \\ 20 \\ \underline{-18} \\ 20 \\ \underline{-18} \\ 2 \end{array}$$

15) $\frac{3}{4}$

$\boxed{.75}$

$$\begin{array}{r} .75 \\ 4 \overline{) 3.00} \\ \underline{-28} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

* DO $\boxed{3} \div \boxed{4}$ on calc to check

Convert the following decimals to fractions (in simplest form)

16) .7

$\boxed{\frac{7}{10}}$

$\boxed{2nd}$ \boxed{PRB}

Simplify the following

17) .25

$\frac{25}{100} \xrightarrow{\div 25} \boxed{\frac{1}{4}}$

* $\boxed{A \div C}$ to reduce

18) .88888...

$\boxed{\frac{8}{9}}$

* Repeating = 9's in the denominator

19) .343434...

$\boxed{\frac{34}{99}}$

20) $4^2 = \boxed{16}$

$\boxed{4} \boxed{\times^2}$

21) $7^3 = \boxed{343}$

$\boxed{7} \boxed{\wedge} \boxed{3}$

22) $6^2 = \boxed{36}$

23) $3^3 = \boxed{27}$

24) $\sqrt{49} = \boxed{7}$

$\boxed{2nd}$ $\boxed{\sqrt{\quad}}$

25) $-\sqrt{100} = \boxed{-10}$

$-1 \cdot \sqrt{100}$

$-1 \cdot 10$

$\boxed{-} \boxed{2nd} \boxed{\sqrt{\quad}}$

26) $\sqrt[3]{8} = \boxed{2}$

$\boxed{3} \boxed{2nd} \boxed{\wedge} \boxed{8}$

27) $\sqrt[3]{64} = \boxed{4}$

$\boxed{3} \boxed{2nd} \boxed{\wedge} \boxed{64}$

Compare the following using $<$, $>$, or $=$ (nearest hundredth)

28) $\sqrt{7} < 3$

$2.65 < 3.00$

29) $\frac{5}{2} > \sqrt{5}$

$2.50 > 2.24$

30) $.35 = \frac{7}{20}$

$.35 = .35$

Order from least to greatest (nearest hundredth)

31) $\sqrt{3}, -\frac{7}{4}, 2.13$

$-\frac{7}{4}, \sqrt{3}, 2.13$

$\sqrt{3} = 1.73$

$-\frac{7}{4} = -1.75$

$2.13 = 2.13$

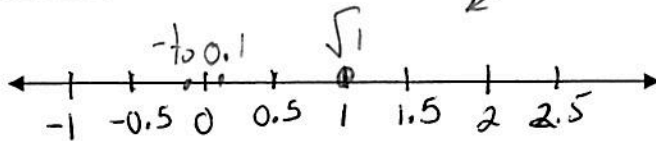
Plot the set of numbers on a number line (nearest hundredth) ★ original form

32) $\sqrt{1}, 0.1, -\frac{1}{10}$

$\sqrt{1} = 1.00$

$0.1 = .01$

$-\frac{1}{10} = -0.10$



The square root of the following number is between what 2 integers? Show work

33) $\sqrt{8}$

$\sqrt{4} < \sqrt{8} < \sqrt{9}$

$2 < \sqrt{8} < 3$

$\sqrt{8}$ is between 2 + 3

34) $\sqrt{40}$

$\sqrt{36} < \sqrt{40} < \sqrt{49}$

$6 < \sqrt{40} < 7$

$\sqrt{40}$ is between 6 + 7

Estimate the square root to the nearest whole number. Show work

35) $\sqrt{17}$

$\sqrt{16} < \sqrt{17} < \sqrt{25}$

$4 < \sqrt{17} < 5$

17	25
$\frac{-16}{1}$	$\frac{-17}{8}$

$\sqrt{17}$ is between 4 + 5 and closer to 4

Estimate the square root to the nearest tenth. Show work

36) $\sqrt{40}$

$\sqrt{36} < \sqrt{40} < \sqrt{49}$

$6 < \sqrt{40} < 7$

40	49
$\frac{-36}{4}$	$\frac{-40}{9}$

$\sqrt{40}$ is between 6 + 7 and closer to 6

$\sqrt{40} \approx 6.32455532\dots$

6.3

Estimate the following to the nearest hundredth. Show work

37) $\sqrt{7} + \sqrt{3}$

$2.65 + 1.73 = \boxed{4.38}$

or
calc

