

Name: Key

*Show all work!

8.NS.1-2 Number System Cumulative Review HW

1. Which list of numbers contains an irrational number?

- A. $\frac{1}{5}, 0, \sqrt{9}$
- B. $\frac{1}{3}, 2.5, \sqrt{10}$ irrational
- C. $\frac{3}{1}, 0.40, \sqrt{64}$
- D. $\frac{1}{2}, 1.529783, \sqrt{36}$

2. The value of $\sqrt{21}$ is between which two numbers?

- A. between 20 and 22
- B. between 10 and 11
- C. between 4 and 5
- D. between 2 and 3

$\sqrt{16} < \sqrt{21} < \sqrt{25}$
 $\begin{matrix} =4 & & =5 \end{matrix}$

3. Which list of numbers is ordered from least to greatest?

- A. $-8, \sqrt{65}, -8.5$
- B. $-8.5, \sqrt{65}, -8$
- C. $\sqrt{65}, -8.5, -8$

Think about a number line

$-\sqrt{64} \approx -\sqrt{65}$
 $-8.1 \approx \sqrt{65}$
 $-8.5, -\sqrt{65}, -8$

4. Explain why 8 is the best whole number estimate of $\sqrt{83}$

- A. 83 is between 82 and 85, and 83 is closer to 82 than it is to 85
- B. $\sqrt{83}$ is a perfect square
- C. 9 is a perfect square
- D. 83 is between 81 and 100 and 83 is closer to 9^2 than it is to 10^2

$\sqrt{81} < \sqrt{83} < \sqrt{100}$
 $\begin{matrix} =9 & & =10 \end{matrix}$

5. Mandy knows the square root of 36 is 6 and the square root of 49 is 7. Using this information, which number is closest to the square root of 40?

- A. 6.1
- B. 6.3
- C. 6.8
- D. 6.9

$\sqrt{36} = 6$
 $\sqrt{40}$
 $\sqrt{49} = 7$

$\sqrt{40}$ is closer to the $\sqrt{36}$, so, 6.1 or 6.3 would be the best choices.

$\begin{array}{r} 6.1 \\ \times 6.1 \\ \hline 161 \\ +3660 \\ \hline 37.21 \end{array}$	$\begin{array}{r} 6.3 \\ \times 6.3 \\ \hline 189 \\ +3780 \\ \hline 39.69 \end{array}$
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*You can multiply 6.1×6.1 and 6.3×6.3 to see which is a better estimate for $\sqrt{40}$.

↑
 This is closer to 40, so 6.3 is a better approximation.

6. Which is closest to the value of $10\sqrt{63}$?

- A. 24
- B. 80
- C. 158
- D. 315

$10\sqrt{63}$ ← side by side means multiply!
 $10(8) = 80$ ← $\sqrt{63}$ is about $\sqrt{64} = 8$

7. Which value below is the greatest?

- A. $\sqrt{10}$
- B. $\frac{8}{3}$
- C. $\sqrt{3}$
- D. $\frac{11}{12}$

A. $\sqrt{10}$ is about $\sqrt{9} = 3$
 B. $3 \overline{)8100}$
 $\frac{8}{3} = 2.\overline{6}$

C. $\sqrt{3}$ is between $\sqrt{1} = 1$ and $\sqrt{4} = 2$, but closer to 2.

8. Which fraction is equivalent to $0.\overline{4}$?

- A. $\frac{4}{9}$
- B. $\frac{4}{10}$
- C. $\frac{4}{11}$
- D. $\frac{4}{12}$

$\frac{4}{9}$ ← repeating digit
 $\frac{4}{9}$ ← one 9, because one repeating digit

D. $12 \overline{)1100}$
 $\frac{11}{12} \approx 0.91\overline{6}$

- A. $\sqrt{10} \approx 3.1$
- B. $\frac{8}{3} = 2.\overline{6}$
- C. $\sqrt{3} \approx 1.9$
- D. $\frac{11}{12} \approx 0.91\overline{6}$

9. Between which two whole numbers does $\sqrt{57}$ lie?

- A. 58 and 56
- B. 29 and 28
- C. 8 and 7
- D. 8 and 9

$\sqrt{49} < \sqrt{57} < \sqrt{64}$
 $\begin{matrix} =7 & & =8 \end{matrix}$

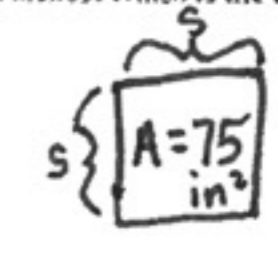
10. Which number below is between 8 and 10?

- A. $\sqrt[3]{343}$
- B. $\sqrt{1,100}$
- C. $\sqrt{38}$
- D. $\sqrt{77}$

$\sqrt[3]{343} = 7$
 $10 \cdot 10 \cdot 10 = 1000$, so $\sqrt[3]{1100}$ is going to be greater than 10.
 $\sqrt{36} < \sqrt{38} < \sqrt{49}$
 $\begin{matrix} =6 & & =7 \end{matrix}$
 $\sqrt{64} < \sqrt{77} < \sqrt{81}$
 $\begin{matrix} =8 & & =9 \end{matrix}$

11. A square tile has an area of 75 square inches. Which is the best estimate for the length of one side of the tile?

- A. between 6 and 8 inches
- B. between 8 and 10 inches
- C. between 37 and 50 inches
- D. between 64 and 81 inches



$s \cdot s = 75$, so
 $\sqrt{75} \approx$

$8 = \sqrt{64} < \sqrt{75} < \sqrt{81} = 9$

12. Which of these statements is true?

- A. $\sqrt{11}$ and $\sqrt{14}$ are both between 3 and 4
- B. $\sqrt{11}$ and $\sqrt{14}$ are both between 3 and 3.5
- C. $\sqrt{11}$ and $\sqrt{14}$ are both between 3.5 and 4
- D. $\sqrt{11}$ and $\sqrt{14}$ are both between 10 and 15

$\sqrt{9} < \sqrt{11} < \sqrt{16}$ ← closer to 3
 $\begin{matrix} =3 & & =4 \end{matrix}$
 $\sqrt{9} < \sqrt{14} < \sqrt{16}$ ← closer to 4
 $\begin{matrix} =3 & & =4 \end{matrix}$

13. Which set of numbers below contains only natural numbers?

- A. 1, 8, 12
- B. 4, 9, 18, 25
- C. 5, 7, 15

counting #'s

$\sqrt{4}$ 2, $\sqrt{9}$ 3, $\sqrt{12}$ irrational, $\sqrt{16}$ 4