Math 9 – Unit 3 Quiz – Version 1

Name: _____

Multiple Choice EACH MULTIPLE CHOICE = 2 PTS 20 POINTS

Identify the choice that best completes the statement or answers the question.

B 1. Identify the number that is NOT equal to the other three numbers.

$\frac{-5}{8}, \frac{5}{-8}, \frac{-5}{-8}, -\frac{5}{8}$

$\frac{-5}{8} = -$ $\frac{5}{-8} = -$ $\frac{-5}{-8} = +$ $-\frac{5}{8} = -$ this is the only + one

a. $\frac{5}{-8}$ b. $\frac{-5}{-8}$ c. $-\frac{5}{8}$ d. $\frac{-5}{8}$

C 2. Order the numbers from least to greatest.

-0.4, $-0.\bar{4}$, -0.44

$-0.\bar{4}$ -0.442 -0.43 -0.41 -0.443 -0.441 -0.42 -0.4 -0.44 0

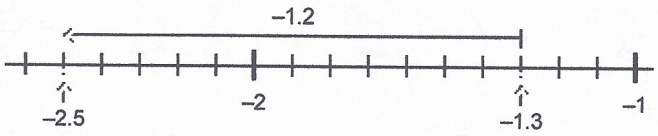
$-0.\bar{4} < -0.44 < -0.4$

numbers get smaller this way

a. -0.44, $-0.\bar{4}$, -0.4 c. $-0.\bar{4}$, -0.44, -0.4

b. -0.4, $-0.\bar{4}$, -0.44 d. -0.4, -44, $-0.\bar{4}$

C 3. Which of the following equations is true? If you wish, you can use the number line as a reference.



- The arrow starts at -1.3
- It goes to the left, becoming more negative
- It moves -1.2
- It ends at -2.5

So: $-1.3 - 1.2 = -2.5$

a. $-2.5 + (-1.2) = -1.3$ c. $-1.3 + (-1.2) = -2.5$

b. $-2.5 - 1.2 = -1.3$ d. $-1.3 + 2.5 = -1.2$

B 4. Determine this sum.

$(-2.5) + (-6.1)$

$-2.5 + -6.1 \rightarrow -8.6$

a. 8.6 b. -8.6 c. -3.6 d. 3.6

To a Negative we "add" more negative ⇒ more negative

A 5. Determine this sum.

$\frac{14}{7} + \left(-\frac{15}{14}\right)$

- Make the fractions "have" same denominator by finding the common denominator ⇒ 14

$\left(\frac{14}{7}\right)_{\times 2} - \frac{15}{14} = \frac{28}{14} - \frac{15}{14} = \frac{13}{14}$

a. $\frac{13}{14}$ b. $-\frac{13}{14}$ c. $\frac{1}{7}$ d. $\frac{-1}{7}$

D 6. Which expression has the least sum?

~~i) 9.43 + 6.05~~

ii) −9.43 + 6.05

~~iii) 9.43 + (−6.05)~~

iv) −9.43 + (−6.05)

Least sum ⇒ smallest

- We know that negatives are smaller than positive numbers, so we can eliminate the positive ones
- iii) results in a positive number

a. i b. ii c. iii d. iv

ii → −9.43 + 6.05

iv → −9.43 + (−6.05) ⇒ more negative number, so it's the least

A 7. Determine this difference ***(subtraction)***. TO SUBTRACT, YOU "add the opposite"

$3.7-(-5.9)$ $(3.7)+(5.9)=9.6$

a. 9.6 b. −21.8 c. 8.6 d. −2.2

D 8. Which expression has the same answer as $-\frac{3}{4}-\left(-\frac{7}{8}\right)$? "add the opposite"

i) $-\frac{3}{4}-\frac{7}{8}$ Not an answer because -7/8

ii) $\frac{3}{4}+\frac{7}{8}$ Not an answer because 3/4

iii) $-\frac{3}{4}+\frac{7}{8}$ ← LOOKS THE SAME

iv) $\frac{3}{4}-\left(-\frac{7}{8}\right)$ Not an answer because 3/4

$-\frac{3}{4}+\left(+\frac{7}{8}\right)=\left(-\frac{3}{4}\right)_{\times 2}^{\times 2}+\left(\frac{7}{8}\right)=-\frac{6}{8}+\frac{7}{8}$

Find the common denominator

$\frac{1}{8}=\frac{-6+7}{8}$

a. ii b. i c. iv d. iii

B 9. Determine this difference. TO SUBTRACT, YOU "ADD THE OPPOSITE"

$-\frac{5}{2}-\left(-\frac{9}{5}\right) \Rightarrow -\frac{5}{2}+\left(\frac{9}{5}\right)=\left(-\frac{5}{2}\right)_{\times 5}^{\times 5}+\left(\frac{9}{5}\right)_{\times 2}^{\times 2}=-\frac{25}{10}+\frac{18}{10}$

$=\frac{-25+18}{10}$

$=\boxed{-7/10}$

a. $-\frac{43}{10}$ b. $-\frac{7}{10}$ c. $\frac{7}{10}$ d. $\frac{43}{10}$

A 10. Determine this difference.

$-4\frac{2}{3}-2\frac{1}{2} \Rightarrow -\frac{14}{3}-\frac{5}{2}=\left(-\frac{14}{3}\right)_{\times 2}^{\times 2}-\left(\frac{5}{2}\right)_{\times 3}^{\times 3}=-\frac{28}{6}-\frac{15}{6}$

a. $-7\frac{1}{6}$ b. $7\frac{1}{6}$ c. $2\frac{1}{6}$ d. $-2\frac{1}{6}$

$\boxed{-7\frac{1}{6}} \Leftarrow -\frac{43}{6} \Leftarrow -\frac{28-15}{6}$

Short Answers 7.25

11. Write 3 rational numbers between -2.3 and -2.4.

3 pts

-2.4 ——— -2.3

Ex: -2.31, -2.357 etc

12. Which rational number is less?

$-\frac{4}{7}$, $-\frac{5}{2}$

2 **Method 1** → Most simple: Compare the decimals

$-\frac{4}{7}=-0.57$ $-\frac{5}{2}=-2.5$ ⇒ $-\frac{5}{2}$ is smaller

-2.5 is more negative than -0.57

Method 2 • Find common denominator ⇒ 14

$-\frac{4}{7}\times\frac{2}{2}=-\frac{8}{14}$ $-\frac{5}{2}\times\frac{7}{7}=-\frac{35}{14}$ ⇒ -35 is smaller than -8

2.25

13. Determine this difference. Difference → subtraction.

$-4.5 - 10.1$ IF we add the opposite:

$-4.5 + (-10.1) =$ (negative with negative)

$= -14.6$

Problem 12.75

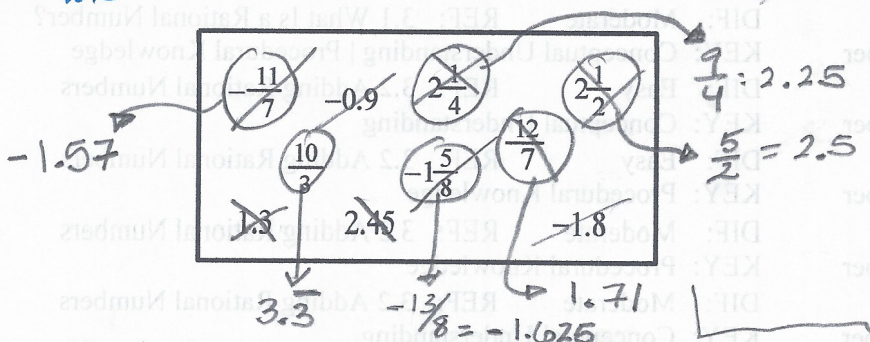
14. Use the numbers in the box below.

(0.25 each)

2 a) List the numbers that are **greater than -1.6.**

1.75 b) List the numbers that are **less than 2.3.**

a) greater → $-\frac{11}{7}, -0.9, 1.3, \frac{12}{7}, 2\frac{1}{4}, 2.45, 2\frac{1}{2}, \frac{10}{3}$



$-1.8, -1.625, -1.57, -0.9 \rightarrow 1.3, 1.71, 2.25, 2.45, 2.5$ (3.3)

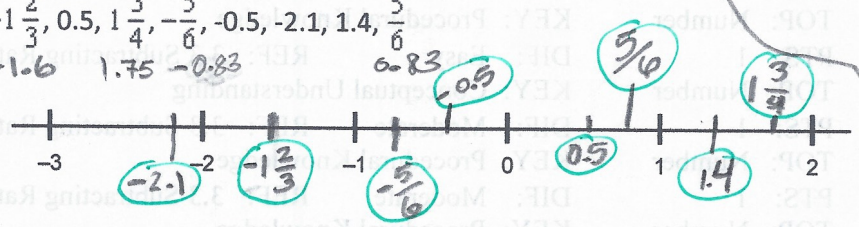
then $-1.8, -1\frac{5}{8}, -\frac{11}{7}, -0.9 \rightarrow 1.3, \frac{12}{7}, 2\frac{1}{4}, 2.45, 2\frac{1}{2}, 3.3\overline{3}$

15. a) Show these rational numbers on the number line:

$-1\frac{2}{3}, 0.5, 1\frac{3}{4}, -\frac{5}{6}, -0.5, -2.1, 1.4, \frac{5}{6}$

$-\frac{5}{3} = -1.\overline{6}$ $1\frac{3}{4} = \frac{7}{4} = 1.75$

2 pts (0.25 each)



b) 2.3 → $2\frac{1}{4}, \frac{12}{7}, 1.3, -0.9, -\frac{11}{7}, -1\frac{5}{8}, -1.8$

b) Which number is least?

1 -2.1

c) Which number is greatest?

1 $1\frac{3}{4}$

5

16. Evaluate this expression. Show your work.

$-2\frac{3}{4} - (-4\frac{1}{3}) - 2\frac{5}{6}$

$= -\frac{11}{4} - (-\frac{13}{3}) - \frac{17}{6}$ ADD the opposite

$-\frac{11}{4} + (-\frac{13}{3}) + (-\frac{17}{6})$

• The common denominator between 4, 3 and 6 = 12

$(-\frac{11}{4})_{\times 3}^{\times 3} + (+\frac{13}{3})_{\times 4}^{\times 4} + (-\frac{17}{6})_{\times 2}^{\times 2} = -\frac{33}{12} + (+\frac{52}{12}) + (-\frac{34}{12})$

$= \frac{-33 + 52 - 34}{12} = \frac{-67 + 52}{12}$

$-\frac{15}{12} = -1\frac{3}{12} \hookrightarrow -1\frac{1}{4}$