Name: Answer Key Date: _____

REVIEW SHEET – RATIONAL NUMBERS

Evaluate each expression. Write all answers in simplest form.

1.) $-\frac{7}{15} - \frac{11}{15}$

$= -\frac{7}{15} + -\frac{11}{15}$

$= \frac{-18}{15} = -1\frac{3}{15}$

$= -1\frac{1}{5}$

2.) $4\frac{1}{8} - (-2\frac{3}{8})$

$= 4\frac{1}{8} + 2\frac{3}{8}$

$= 6\frac{4}{8}$

$= 6\frac{1}{2}$

3.) $-\frac{3}{14} + \frac{6}{7}$

$-\frac{3}{14} + \frac{12}{14}$

$\frac{9}{14}$

4.) $\frac{2\,14}{25} \times (-\frac{3}{7_1})$

$= \frac{-6}{25}$

5.) $-\frac{7}{22_{11}} \times (-\frac{2}{4_1})$

$+ \frac{14}{11} = 1\frac{3}{11}$

6.) $2\frac{1}{2} \times (-10\frac{4}{5})$

$\frac{5}{2_1} \cdot \frac{-54^{27}}{5_1}$

-27

7.) $-1\frac{4}{27} \times (-3\frac{6}{11})$

$-\frac{31}{27} \cdot \frac{-39^{13}}{11}$

$\frac{403}{99} = 4\frac{7}{99}$

8.) $-\frac{3}{10} \div \frac{1}{5}$

$-\frac{3}{2_{10}} \times \frac{5^1}{1}$

$-\frac{3}{2} = -1\frac{1}{2}$

9.) $-\frac{7}{8} \div 1\frac{1}{13}$

$-\frac{7}{8} \div \frac{14}{13}$

$-\frac{7}{8} \cdot \frac{13}{14_2} = \frac{-13}{16}$

10.) $48 \div (-\frac{4}{5})$

$\frac{48^{12}}{1} \times \frac{-5}{4_1}$

-60

11.) $\frac{4}{9} \div \frac{1}{3} + \frac{7}{10}$

$\frac{4}{3_9} \cdot \frac{3^1}{1} + \frac{7}{10}$

$\frac{4}{3} + \frac{7}{10}$

$\frac{40}{30} + \frac{21}{30} = \frac{61}{30} = 2\frac{1}{30}$

12.) $\frac{5}{8} + \frac{5}{12} \div \frac{10}{21}$

$\frac{5}{8} + \frac{5^1}{12_4} \cdot \frac{21^7}{10_2}$

$\frac{5}{8} + \frac{7}{8}$

$\frac{12}{8} = 1\frac{4}{8} = 1\frac{1}{2}$

13.) $-\frac{3}{16} \div (\frac{3}{4} + \frac{5}{6})$

$-\frac{3}{16} \div (\frac{9}{12} + \frac{10}{12})$

$-\frac{3}{16} \div \frac{19}{12}$

$-\frac{3}{4_{16}} \times \frac{12^3}{19}$

$\frac{-9}{76}$

14.) $\frac{7^1}{9_{18}} \times (-\frac{5_{10}}{3_{21}}) \div 1\frac{2}{9}$

$-\frac{5}{27} \div \frac{11}{9}$

$\frac{5}{3_{27}} \cdot \frac{9^1}{11}$

$\frac{-5}{33}$

15.) $\frac{1}{2} - (-4.5)(3)$

$\frac{1}{2} - (-13.5)$

$.5 + 13.5$

$= 14$

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16.) $7 - [1.1 + (-5.9)]$

$7 - [-4.8]$

$7 + 4.8$

11.8

17.) $-\frac{1}{2}[1.8 \div -0.6]$

$-\frac{1}{2}[-3]$

$\frac{3}{2} = 1\frac{1}{2}$

Evaluate each algebraic expression using the given values for each variable.

$a = -2.5$ $b = -\frac{1}{2}$ $c = -10$

18.) $a + b + c$

$(-2.5) + (-.5) + (-10)$

-13

19.) $(a + bc)^2$

$(-2.5 + (-\frac{1}{2})(-10))^2$

$(-2.5 + 5)^2$

$(2.5)^2$

6.25

20.) $c \div b^2$

$-10 \div (-\frac{1}{2})^2$

$-10 \div \frac{1}{4}$

$\frac{-10}{1} \times \frac{4}{1} = -40$

21.) $b(c - a)$

$-\frac{1}{2}(-10 - (-2.5))$

$-\frac{1}{2}(-10 + 2.5)$

$-\frac{1}{2}(-7.5)$

3.75

22.) $a(c - b)$

$-2.5(-10 - -\frac{1}{2})$

$-2.5(-10 + .5)$

$-2.5(-9.5)$

23.75

23.) $c^2 + b^2 + a^2$

$(-10)^2 + (-\frac{1}{2})^2 + (-2.5)^2$

$100 + \frac{1}{4} + 6.25$

$100 + .25 + 6.25$

106.5

Write as a proper fraction or mixed number in simplest from:

24.) $\frac{18}{36} = \frac{1}{2}$

25.) $-\frac{92}{7} = -13\frac{1}{7}$

26.) $\frac{-116}{348} = -\frac{1}{3}$

Write as an improper fraction and then find the reciprocal.

27.) $3\frac{3}{8}$ frac $\frac{27}{8}$ recip $\frac{8}{27}$

28.) $-7\frac{4}{9}$ frac $\frac{-67}{9}$ recip $\frac{-9}{67}$

29.) What are the three ways to write the opposite of $\frac{1}{2}$? $-\frac{1}{2}$, $\frac{1}{-2}$, $-\frac{1}{2}$

30.) What is the reciprocal of 0? none

31.) Is 0 a rational a number? yes