Name Key

Your score Key Percent _____ %

Unit 2 (Fractions) Study Guide

Possible points _____ Grade _____

Math 7/7+ MELOTT

Show work on *ALL* problems

Standard 7.NS.2 Apply and extend previous understandings of multiplication and division & of fractions to multiply and divide rational numbers

Reduce the following fractions:

1) $\frac{9}{21} \div \frac{3}{3} = \frac{3}{7}$	**2)** $\frac{18}{24} \div \frac{6}{6} = \frac{3}{4}$

Convert the following improper fractions to mixed numbers:

3) $\frac{16}{6}$ $2\frac{4}{6} = 2\frac{2}{3}$	**4)** $-\frac{14}{3}$ $-4\frac{2}{3}$

Convert the following mixed numbers to improper fractions:

5) $2\frac{1}{8}$ $\frac{17}{8}$	**6)** $-3\frac{1}{5}$ $-\frac{16}{5}$

Add the following fractions:

7) $\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$	**8)** $\frac{4}{3} + \frac{4}{3} = \frac{8}{3}$ or $2\frac{2}{3}$

Add the following fractions:

9) $\frac{1}{5} + \frac{2}{4}$ (·5, ·5)

$\frac{4}{20} + \frac{10}{20} = \frac{14}{20} = \frac{7}{10}$

10) $-\frac{3}{4} + (-\frac{5}{4})$

$-\frac{8}{4} = -2$

11) $\frac{-2}{20} + \frac{5}{20} = -2+5 = +3$

$\frac{3}{20}$

12) $2\frac{1}{5} + 1\frac{2}{7}$ (·7, ·5)

$2\frac{7}{35} + 1\frac{10}{35}$

$3\frac{17}{35}$

13) $1\frac{5}{8} + (-2\frac{5}{6})$ (·3, ·4)

$1\frac{15}{24} - 2\frac{20}{24}$

$-1\frac{5}{24}$

14) $-3\frac{1}{8} + (-1\frac{1}{4})$ (·2)

$-3\frac{1}{8} + -1\frac{2}{8}$

$-4\frac{3}{8}$

Subtract the following fractions:

15) $\frac{5}{8} \quad \frac{1}{8}$

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

16) $\frac{5}{8} - \frac{7}{8}$

$-\frac{2}{8} = -\frac{1}{2}$

17) $\frac{2}{3} - \frac{1}{4}$ (·4, ·3)

$\frac{8}{12} - \frac{3}{12} = \frac{5}{12}$

18) $-\frac{1}{5} - \frac{1}{5}$

$-\frac{2}{5}$

Subtract the following fractions:

19) $1\frac{1}{3} - 2\frac{2}{3}$

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

$1\frac{1}{3}$ ↑ mark

$\ominus 1\frac{1}{3}$

20) $3\frac{3}{8} \ominus 2\frac{4}{6}$ ← reduce

$3\frac{3}{8} \oplus 2\frac{2}{3}$

$3\frac{3}{8}\cdot\frac{3}{3} + 2\frac{2}{3}\cdot\frac{8}{8}$

$3\frac{9}{24} + 2\frac{16}{24} = 5\frac{25}{24}$

$6\frac{1}{24}$ ← rewrite

Multiply the following fractions: ← no common denominators needed

21) $\frac{1}{2} \cdot \frac{1}{7}$

$\frac{1}{14}$ ← $\frac{1\cdot1}{2\cdot7}$

22) $3\left(\frac{2}{5}\right)$

$\frac{3}{1}\cdot\frac{2}{5} = \frac{6}{5}$

23) $\frac{12}{5}\left(-\frac{4}{6}\right)$ (3)

$-\frac{4}{15}$

24) $8\frac{1}{6} \times \frac{4}{-3}$

$\frac{49}{6} \cdot \frac{4^{(2)}}{-3} = \frac{98}{9}$ (3)

Divide the following fractions: copy · flip

25) $\frac{5}{8} \div \frac{1}{4}$

$\frac{5}{2^{(8)}} \cdot \frac{4^{(1)}}{1} = \frac{5}{2}$

26) $-\frac{3}{9} \div \frac{1}{3}$

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

27) $3\frac{1}{2} \div 1\frac{3}{8}$

$\frac{7}{2} \div \frac{11}{8}$

$\frac{7}{2^{(1)}} \cdot \frac{8^{(4)}}{11} = \frac{28}{11}$

Standard 7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients

28) Write an equivalent expression for $\frac{4}{5}(x + \frac{5}{3}) - \frac{3}{8}$

$\frac{4}{5}x + \frac{4}{3} - \frac{3}{8}$

$\frac{4 \cdot 8}{3 \cdot 8} - \frac{3 \cdot 3}{8 \cdot 3}$

$\frac{32}{24} - \frac{9}{24}$

$\frac{4}{5}x + \frac{23}{24}$

29) Simplify the complex fraction.

$$\frac{\frac{3}{8}}{\frac{2}{3}}$$

$\frac{3}{8} \div \frac{2}{3}$ copy · flip

$\frac{3}{8} \cdot \frac{3}{2} = \frac{9}{16}$

30) Find the unit rate for the following problem.

Tommy ran $\frac{2}{3}$ of a mile in $\frac{1}{6}$ hour. What was his running speed in miles per hour?

$$\frac{\frac{2}{3}}{\frac{1}{6}} = \frac{2}{3} \cdot \frac{6^2}{1} =$$

4 miles per hour

31) Write an equivalent expression for the expression below, making sure to factor:

$\frac{1}{2}x + 16$

$\frac{1}{2} \div \frac{1}{2} = \frac{1}{2} \cdot 2 = 1$

$16 \div \frac{1}{2} = 16 \cdot 2 = 32$

$\frac{1}{2}(1x + 32)$

Side note

32) Write an equivalent expression for the expression below, making sure to factor:

$\frac{\ominus 7}{8} x \ominus \frac{8}{15}$

$\frac{7}{8} \div \frac{7}{8} = \frac{7}{8} \cdot \frac{8}{7} = 1$

$\frac{8}{15} \div \frac{7}{8} =$

$= \frac{8}{15} \cdot \frac{8}{7} =$

$= \frac{64}{105}$

$-\frac{7}{8}(1x + \frac{64}{105})$