MCC7NS2. Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers.

1. **The variables *x* and *y* represent nonzero rational numbers. Which situation could be solved using the product of *xy*, where *xy* represents a negative value?**

   A. the change in degrees if the temperature decreases by *x* degrees per day for *y* days

   B. the amount of juice Susan drinks in *x* days if she drinks *y* fluid ounces of juice each day

   C. the depth of a scuba diver if he dives *x* feet below sea level and then rises *y* feet

   D. the change in the price of an item if the price is increased by *x* dollars one month and decreased by *y* dollars the next month

2. **Which situation can be solved using the expression shown?**

$$\frac{3}{4} \times (24 - 14)$$

   A. Of the 24 students in a class, 14 did not buy fruit. Each of the others spent $\frac{3}{4}$ of a dollar on fruit. What is the total amount of money those students spent on fruit?

   B. A class of 14 students and a class of 10 students are in band during first period. If $\frac{1}{4}$ of the students are girls, how many boys are in band during first period?

   C. Each of 24 students in a class received 10 markers. The teacher took $\frac{3}{4}$ of the markers to save for another day. How many markers were left with the students?

   D. A school assembly was scheduled to last 24 minutes. The assembly ended 10 minutes early. Of the students attending the assembly, $\frac{3}{4}$ were boys. How many boys returned to class early?

3. **Which statement about the product of a whole number and its additive inverse is true?**

   A. The product will be 1.

   B. The product will be 0.

   C. The product will be negative.

   D. The product will be greater than the whole number.

4. **Which statement is true?**

   A. $-\frac{5}{8}$ is equivalent to $\frac{20}{32}$ because $-\frac{5}{8} \times \frac{4}{4} = \frac{20}{32}$.

   B. $\frac{3}{5}$ is equivalent to $-\frac{9}{15}$ because $\frac{3}{5} \times \frac{3}{3} = -\frac{9}{15}$.

   C. $-\frac{16}{6}$ is equivalent to $\frac{8}{3}$ because $\frac{8}{3} \times \frac{-2}{-2} = -\frac{16}{6}$.

   D. $\frac{20}{6}$ is equivalent to $\frac{-10}{-3}$ because $\frac{-10}{-3} \times \frac{-2}{-2} = \frac{20}{6}$.

5. **Which fraction divided by $\frac{3}{6}$ is equal to $-\frac{9}{10}$?**

A. $-\frac{3}{2}$ B. $-\frac{9}{20}$ C. $\frac{9}{20}$ D. $\frac{9}{40}$

6. **Miss Valens withdrew $525 from her savings account over a period of 14 days. Which ratio represents the daily change in her account balance?**

A. $\frac{-525}{14}$ B. $\frac{-525}{-14}$ C. $\frac{-14}{525}$ D. $\frac{-14}{-525}$

7. **Luisa owes her brother's bike shop $24 for fixing her bike. Her brother said he would give Luisa half off the debt. Which expression represents the new amount of Luisa's debt?**

A. $\frac{-24}{12}$ B. $\frac{-24}{2}$ C. $\frac{-24}{-2}$ D. $\frac{-24}{\frac{1}{2}}$

8. **Four students were asked to write a ratio equivalent to $-\frac{4}{79}$. Their answers are shown below.**

Cristal	Esmeralda	Jim	Marcus
$\frac{-4}{79}$	$-\left(\frac{4}{79}\right)$	$\frac{-4}{-79}$	$\frac{4}{(-79)}$

Which student did not write a ratio that is equivalent to $-\frac{4}{79}$?

A. Cristal B. Esmeralda C. Jim D. Marcus

9. **What is the quotient of** $-10 \div 5$?

A. 5 B. 2 C. -2 D. -5

10. **Which situation can be represented by** $\frac{-48}{3}$?

A. Georgia missed 48 points on her science tests.

B. Tina withdrew $48 from her savings account 3 times this month.

C. Jose's team lost a football game by 12 points 3 times this season.

D. Franklin withdrew $48 from his savings account in 3 equal withdrawals.

11. **Which expression is equivalent to** $1\frac{1}{8}(40)$?

A. $1+\frac{1}{8}+40$ B. $1\left(\frac{1}{8}\right)40$ C. $40-\frac{1}{8}(40)$ D. $40+\frac{1}{8}(40)$

12. **Which expression shows the result of applying the commutative property to the equality below?**

$(19 \times 36) \times 7 = \square$

A. $19 \times (36 \times 7)$ **B.** $(36 \times 19) \times 7$ **C.** $(19 \times 36)(7 \times 1)$ **D.** $(19 \times 7)(36 \times 7)$

13. A wall space by a bathroom sink is covered with 20 tiles measuring 3.2 inches by 4.4 inches each. The area of the wall space, in square inches, is given by the expression below.

$20 \times (3.2 \times 4.4)$

Which expression below is equivalent to the area of the wall space?

A. $32 \times 44 \times 20$

C. $(20 \times 4.4) \times (3.2 \times 4.4)$

B. $3.2 \times 4.4 \times 20$

D. $(20 \times 3.2) + (20 \times 4.4)$

14. Which property is represented by the equation shown below?

$0 \times 35 = 0$

A. the zero property of multiplication

B. the associative property of multiplication

C. the distributive property of multiplication

D. the commutative property of multiplication

15. Which expression could be used to calculate $\frac{3}{4}\left(-\frac{3}{4}\right)\left(\frac{4}{3}\right)$?

A. $\frac{3}{4}\left(-\frac{3}{4}\right)\left(\frac{4}{3}\right) = \left(\frac{3}{4} \bullet \frac{4}{3}\right) + \left(\frac{3}{4} \bullet -\frac{4}{3}\right) = 1 + -1 = 0$

B. $\frac{3}{4}\left(-\frac{3}{4}\right)\left(\frac{4}{3}\right) = \left(\frac{3}{4} \bullet \frac{4}{3}\right)\left(-\frac{3}{4}\right) = 1\left(-\frac{3}{4}\right) = -\frac{3}{4}$

C. $\frac{3}{4}\left(-\frac{3}{4}\right)\left(\frac{4}{3}\right) = \left(\frac{3}{4} \bullet -\frac{3}{4}\right)\left(\frac{4}{3}\right) = (-1)\left(\frac{4}{3}\right) = -\frac{4}{3}$

D. $\frac{3}{4}\left(-\frac{3}{4}\right)\left(\frac{4}{3}\right) = \left(\frac{3}{4} \bullet -\frac{3}{4}\right)\left(\frac{4}{3}\right) = \left(-\frac{9}{4}\right)\left(\frac{4}{3}\right) = -3$

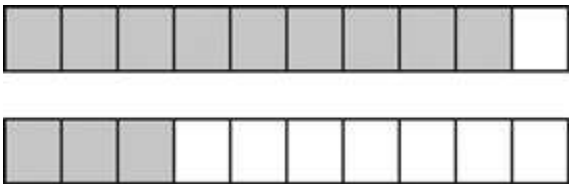
16. What decimal is equal to $\frac{6}{20}$**?**

A. 0.2 B. 0.3 C. 0.6 D. 0.8

17. Which fraction is equivalent to a repeating decimal?

A. $\frac{3}{50}$ B. $\frac{11}{100}$ C. $\frac{4}{9}$ D. $\frac{7}{8}$

18. The rooms at a hotel that need to be cleaned are shaded in the diagram below.



Which three ways can the manager of the hotel use to report the rooms that need to be cleaned?

A. $\frac{3}{5}$, 35%, 0.35 B. $\frac{3}{5}$, 60%, 0.6 C. $\frac{3}{4}$, 75%, 0.75 D. $\frac{3}{4}$, 34%, 0.34

19. Which fraction is equivalent to a repeating decimal?

A. $\frac{1}{4}$ B. $\frac{1}{5}$ C. $\frac{1}{8}$ D. $\frac{1}{9}$

20. Which fraction is equivalent to 0.128?

A. $\frac{3}{25}$ B. $\frac{1}{8}$ C. $\frac{16}{125}$ D. $\frac{4}{30}$