GRADE 7

Domain 1

The Number System

Domain 1: Diagnostic Assessment for Lessons 1–8

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Domain 1: Cumulative Assessment for Lessons 1–8

Lesson Practice

L1. Relate Fractions, Decimals, and Percents

Choose the correct answer.

1. About 60.7% of eligible voters voted in the election. Which decimal is equivalent to 60.7%?

   A. 0.0607
   B. 0.607
   C. 6.07
   D. 60.7

2. In a survey of patients, Dr. Molar found that 8% of his patients floss daily. Which fraction is equivalent to 8%?

   A. $\frac{4}{5}$
   B. $\frac{2}{5}$
   C. $\frac{4}{25}$
   D. $\frac{2}{25}$

3. Kristen made $\frac{3}{8}$ of her free throws for the season. Which percent is equivalent to $\frac{3}{8}$?

   A. 37.5%
   B. 38%
   C. 38.5%
   D. 375%

4. Tomas correctly spelled 18 out of 20 words on his last spelling quiz. What decimal represents the portion of the words that Tomas spelled correctly?

   A. 0.18
   B. 0.36
   C. 0.8
   D. 0.9

5. Which fraction is equivalent to 48%?

   A. $\frac{4}{5}$
   B. $\frac{4}{8}$
   C. $\frac{12}{25}$
   D. $\frac{8}{25}$

6. Sales at Cycle time increased by 370% this year. Which of the following is equivalent to 370%?

   A. $\frac{37}{100}$
   B. 3.7
   C. $3\frac{7}{100}$
   D. 37

7. Which rational number is **not** equivalent to the others?

A. 75%

B. $\frac{3}{4}$

C. 0.75

D. $\frac{7}{50}$

8. Which of the following shows a set of equivalent rational numbers?

A. $\frac{2}{5}$ 0.4 25%

B. $\frac{2}{3}$ 0.6 66%

C. $\frac{3}{10}$ 0.3 30%

D. $\frac{73}{100}$ 0.73 730%

9. The Lions won 35 out of 40 games this season.

A. What fraction of games played did the Lions win? Write your answer in simplest form.

B. Write a decimal and a percent equivalent to the fraction of games the Lions won. Show your work.

Lesson Practice L2 - Solve Problems with Percents

Choose the correct answer.

1. What is 72% of 175?

   A. 1.26
   B. 12.6
   C. 126
   D. 1,260

2. A computer that originally cost $850 is on sale for 15% off. What is the sale price of the computer?

   A. $127.50
   B. $722.50
   C. $835.00
   D. $977.50

3. There were 60 seventh-grade students who signed up for soccer tryouts last year. This year, 48 seventh-grade students signed up for tryouts. What is the percent decrease in the number of students from last year to this year?

   A. 18%
   B. 20%
   C. 25%
   D. 80%

4. Pablo put $1,260 into a savings account that earns 3% simple interest per year. He does not make any deposits or withdrawals. How much money will be in Pablo's account after 2 years?

   A. $75.60
   B. $1,297.80
   C. $1,335.60
   D. $8,820.00

5. Mrs. Blake's bill at a restaurant was $42.75. She wants to leave the waiter an 18% tip. How much will she pay in all, including the tip?

   A. $6.41
   B. $7.70
   C. $49.14
   D. $50.45

6. Mr. Chung stayed four nights at a hotel. His bill was $725 before the sales tax of 6% was added. How much was the sales tax?

   A. $43.50
   B. $45.00
   C. $46.50
   D. $49.00

7. In September, there were 16 members in the Music Club. In October, the number of members was 24. What was the percent increase from September to October?

A. 20%

B. 30%

C. $33\frac{1}{3}\%$

D. 50%

8. There are 120 students in the seventh grade. Seventy percent of these students are involved in extracurricular activities. How many seventh grade students are **not** involved in an extracurricular activity?

A. 36

B. 50

C. 70

D. 84

9. Isme estimated that there are 50 students in the seventh-grade class. There are actually 40 students in the seventh-grade class.

A. What is Isme's percent error? Show your work.

B. Out of the 40 students in the seventh-grade class, 60% of the students carry a cell phone. What fraction of the students in the seventh-grade class carry a cell phone? How many students in the seventh-grade class carry a cell phone? Show your work.

Lesson Practice

L3. Terminating and Repeating Decimals

Choose the correct answer.

1. Which fraction can be expressed as a terminating decimal?

   A. $\frac{1}{9}$

   B. $\frac{3}{11}$

   C. $\frac{5}{8}$

   D. $\frac{2}{3}$

2. Which fraction can be expressed as a repeating decimal?

   A. $\frac{1}{10}$

   B. $\frac{1}{4}$

   C. $\frac{3}{5}$

   D. $\frac{7}{9}$

3. Which fraction **cannot** be expressed as a terminating decimal?

   A. $\frac{1}{15}$

   B. $\frac{3}{10}$

   C. $\frac{2}{5}$

   D. $\frac{7}{8}$

4. Which fraction **cannot** be expressed as a repeating decimal?

   A. $\frac{8}{9}$

   B. $\frac{3}{4}$

   C. $\frac{13}{18}$

   D. $\frac{1}{7}$

5. Which numbers repeat in the decimal form of $\frac{5}{11}$?

   A. 4

   B. 45

   C. 444

   D. 454

6. Which shows the fraction $\frac{2}{9}$ as a decimal?

   A. $0.\overline{2}$

   B. $0.\overline{22}$

   C. $0.\overline{29}$

   D. $0.\overline{29}$

7. Which shows the fraction $\frac{7}{12}$ as a decimal?

A. 7.12

B. $0.71\overline{2}$

C. $0.58\overline{3}$

D. $0.\overline{58}$

8. Which shows the fraction $\frac{1}{8}$ as a decimal?

A. $0.12\overline{5}$

B. 0.125

C. 0.18

D. $0.\overline{18}$

9. George wrote the division expression $2 \div 5$.

A. Can George's expression be expressed as a rational number? Explain your answer.

B. Can George's expression be expressed as a terminating or repeating decimal? Explain.

Lesson Practice

Lesson 4: Add & Subtract Rational Numbers

Choose the correct answer.

1. Andre uses $\frac{3}{4}$ teaspoon of oregano and $\frac{3}{8}$ teaspoon of rosemary in a recipe. How much oregano and rosemary does Andre use in all?

   A. $\frac{1}{2}$ teaspoon

   B. $\frac{8}{9}$ teaspoon

   C. $1\frac{1}{8}$ teaspoons

   D. $1\frac{3}{8}$ teaspoons

Use this information for questions 2 and 3.

Sharon's house, the library, and Lisa's house are all on the same straight road. Sharon has to ride her bike $1\frac{3}{5}$ miles to get from her house to the library and another $2\frac{3}{4}$ miles to get from the library to Lisa's house.

2. How far does Sharon live from Lisa?

   A. $4\frac{1}{4}$ miles

   B. $4\frac{3}{10}$ miles

   C. $4\frac{7}{20}$ miles

   D. $4\frac{2}{5}$ miles

3. How much closer to the library does Sharon live than Lisa?

   A. $\frac{17}{20}$ mile

   B. $1\frac{3}{20}$ miles

   C. $1\frac{1}{5}$ miles

   D. $1\frac{1}{4}$ miles

4. A rope that measures 3.98 meters is cut into two pieces. If one piece measures 1.425 meters, what is the length of the other piece?

   A. 2.555 meters

   B. 2.565 meters

   C. 2.568 meters

   D. 5.404 meters

5. Paul owes his father \$10.75. He borrows \$5.50 more from his father. Which of the following best represents Paul's debt to his father?

   A. −\$16.25

   B. −\$15.25

   C. −\$5.25

   D. \$5.25

6. Ms. Lindt had \$3,095.63 in her checking account. She wrote a check to pay for two airline tickets that totaled \$1,348.92. How much money does Ms. Lindt have left in her checking account?

   A. \$1,646.71

   B. \$1,647.61

   C. \$1,746.71

   D. \$1,757.71

7. Which of the following is equal to $\left(\frac{1}{2} + \frac{3}{4}\right) - \frac{5}{8}$?

   A. $\left(\frac{3}{4} + \frac{1}{2}\right) - \frac{5}{8}$

   B. $\left(\frac{3}{4} - \frac{1}{2}\right) + \frac{5}{8}$

   C. $\frac{5}{8} - \left(\frac{1}{2} + \frac{3}{4}\right)$

   D. $\frac{5}{8} - \left(\frac{3}{4} + \frac{1}{2}\right)$

8. Which of the following is equal to $1.98 + (2.5 + 3.2)$?

   A. $1.98 - (2.5 + 3.2)$

   B. $(1.98 - 2.5) + 3.2$

   C. $(1.98 + 2.5) + 3.2$

   D. $3.2 - (1.98 + 2.5)$

9. Stephanie had \$325.48 in her checking account. She made deposits of \$28.35 and \$78.88.

   A. How much money was in Stephanie's account after the deposits? Show your work.

   B. Stephanie also wrote one check for \$107.85. How much money is in her account now? Show your work.

Lesson Practice

Lesson 5: Multiply & Divide Rational Numbers

Choose the correct answer.

1. Marta earns $8.76 per hour at her job. Last week, she worked for 32.5 hours. How much money did Marta earn last week?

   A. $259.80
   B. $273.60
   C. $280.82
   D. $284.70

2. Each lap around Spring Reservoir is $2\frac{3}{8}$ miles long. Terrence walked $2\frac{1}{2}$ laps around the reservoir. How many miles did Terrence walk?

   A. $4\frac{3}{16}$ miles
   B. $5\frac{1}{4}$ miles
   C. $5\frac{3}{8}$ miles
   D. $5\frac{15}{16}$ miles

3. Pens are on sale for $0.79 each. Tamira is going to buy as many pens as she can for $13.50 for the upcoming school year. How many pens can Tamira buy?

   A. 15
   B. 16
   C. 17
   D. 18

4. Jamal found 32 shells at the beach. Hayes found $\frac{7}{8}$ as many shells as Jamal found. How many shells did Hayes find?

   A. 24
   B. 28
   C. 30
   D. 39

5. Rochelle's car averages 32.5 miles per gallon on the highway. At that rate, how many gallons of gas will her car use for driving on the highway for 260 miles?

   A. 8 gallons
   B. 11 gallons
   C. 15 gallons
   D. 33 gallons

6. A smoothie recipe calls for $\frac{2}{3}$ cup of orange juice per serving. How many cups of orange juice are needed to make 4 servings?

   A. $1\frac{1}{3}$ cups
   B. 2 cups
   C. $2\frac{2}{3}$ cups
   D. $3\frac{1}{3}$ cups

7. A trail is 13.5 miles long. There are markers every 0.25 mile along the trail, including at the end of the trail. How many markers are there in all?

A. 4

B. 5

C. 40

D. 54

8. Multiply.

$$-\frac{3}{4} \times -1\frac{1}{5} = \square$$

A. $-\frac{9}{10}$

B. $-\frac{3}{4}$

C. $\frac{3}{4}$

D. $\frac{9}{10}$

9. Last year at Roberts Middle School, $\frac{11}{30}$ of the books in the library were more than 50 years old. At the end of the year, $\frac{1}{10}$ of those books were given to charity.

A. What fraction of all the books was given to charity? Show your work.

B. This year, the school library plans to increase its total of 1,210 books by a factor of 1.1. How many books will the library have? Show your work.

Lesson Practice

Lesson 6. Complex Fractions (Mixed Numbers)

Choose the correct answer.

1. Divide.

$$\frac{1}{3} \div \frac{1}{8} = \square$$

A. $\frac{1}{24}$

B. $\frac{3}{8}$

C. $2\frac{2}{3}$

D. 24

2. Mrs. Chapman made vests for cast members of the school play. She used $\frac{3}{4}$ yard of material for each vest. She used 6 yards in all. How many vests did she make?

A. 1

B. 4

C. 6

D. 8

3. Divide.

$$\frac{7}{16} \div 2\frac{3}{8} = \square$$

A. $\frac{7}{46}$

B. $\frac{7}{38}$

C. $1\frac{5}{128}$

D. $2\frac{4}{7}$

4. Which complex fraction is equivalent to 8.15%?

A. $\frac{815}{100}$

B. $\frac{\frac{15}{8}}{100}$

C. $\frac{\frac{163}{20}}{100}$

D. $\frac{\frac{8}{15}}{100}$

5. Kelly had a ribbon that was $5\frac{1}{3}$ feet long. Each piece she cut was $1\frac{1}{3}$ feet long. How many pieces of ribbon did she cut?

A. 1

B. 4

C. 8

D. 12

6. Divide.

$$2\frac{1}{5} \div \frac{1}{10} = \square$$

A. 11

B. 21

C. 22

D. 221

7. What is the value of the following expression?

$$\frac{1}{2} \div \frac{1}{12}$$

A. 3

B. 6

C. 9

D. 24

8. Which quotient is less than 1?

A. $\frac{5}{8} \div \frac{2}{3}$

B. $\frac{7}{10} \div \frac{3}{5}$

C. $\frac{3}{4} \div \frac{1}{3}$

D. $\frac{7}{8} \div \frac{7}{9}$

9. In math class, Ms. Kuramoto wrote the following complex fraction on the board: $\frac{\frac{5}{6}}{\frac{4}{9}}$.

A. Rewrite the complex fraction as a division expression.

B. Show the complex fraction $\frac{\frac{5}{6}}{\frac{4}{9}}$ in simplest form. Show your work.

Lesson Practice

Lesson 7: Add & subtract Integers

Choose the correct answer.

1. Subtract.

$$3 - (-6) = \square$$

A. -9
B. -3
C. 3
D. 9

2. Add.

$$9 + (-16) = \square$$

A. 25
B. 7
C. -7
D. -25

3. Subtract.

$$-10 - 4 = \square$$

A. -14
B. -6
C. 6
D. 14

4. The temperature one morning in Shasta was $-12°F$. By the afternoon, the temperature had risen $8°F$. What was the temperature in the afternoon?

A. $20°F$
B. $4°F$
C. $-4°F$
D. $-20°F$

5. Find the sum.

$$-4 + (-2) = \square$$

A. -6
B. -2
C. 2
D. 6

6. Find the difference.

$$6 - 11 = \square$$

A. -17
B. -5
C. 5
D. 17

7. A submarine at −28 feet dives 40 feet. What is the submarine's elevation after the dive?

   A. 68 feet

   B. 12 feet

   C. −12 feet

   D. −68 feet

8. The Panthers lost 6 yards on their first play and lost another 8 yards on their next play. What was their net result in yards after these two plays?

   A. −14 yards

   B. −2 yards

   C. 2 yards

   D. 14 yards

9. The temperature at the base of a mountain was 14°F. The temperature at the summit was 16°F lower than at the base.

   A. Write a subtraction expression to represent the temperature at the summit.

   B. What was the temperature at the summit? Show your work.

Lesson Practice

Lesson 8 - Multiply & Divide Integers

Choose the correct answer.

1. Multiply.

$29 \cdot (-5) = \square$

A. -145
B. -105
C. 105
D. 145

2. Divide.

$378 \div (-7) = \square$

A. -54
B. -45
C. 45
D. 54

3. Multiply.

$-72 \cdot (-6) = \square$

A. -442
B. -432
C. 432
D. 442

4. The temperature fell 36°F in 9 hours. If the temperature fell at the same rate every hour, which represents the change in temperature each hour?

A. -324°F
B. -27°F
C. -4°F
D. 45°F

5. Divide.

$-385 \div 77 = \square$

A. -15
B. -5
C. 5
D. 15

6. What is the value of $(-3)(5)(-4)$?

A. -60
B. -12
C. 12
D. 60

7. A shoreline is changing -3 centimeters each year due to erosion. What is the change in the shoreline over 6 years?

A. -18 cm
B. -9 cm
C. -3 cm
D. -2 cm

8. The price of a stock rose \$2 yesterday. If the stock continues to change at the same rate each day, what will be the tot change over 10 days?

A. $-\$20$
B. $-\$5$
C. \$5
D. \$20

9. Evan withdrew a total of $160 from an ATM machine over a 4-day period. He withdrew the same amount of money each day.

A. Write an expression to represent the total amount that Evan's account changed each day.

B. What integer represents the total amount that Evan's account changed each day? Show your work.

Domain 1: Cumulative Assessment for Lessons 1–8

1. A computer that originally cost $899 is on sale for 15% off. What is the sale price of the computer?

   A. $134.85
   B. $764.15
   C. $884.00
   D. $1,033.85

2. The temperature on Mars may reach a high of 70°F at the equator in the summer. It may reach a low of −225°F at the poles. Which expression gives the difference between those temperatures?

   A. 225°F − 70°F
   B. −70°F + 225°F
   C. 70°F − 225°F
   D. 70°F − (−225°F)

3. Which fraction can be expressed as a terminating decimal?

   A. $\frac{7}{8}$
   B. $\frac{1}{3}$
   C. $\frac{2}{9}$
   D. $\frac{1}{7}$

4. Ms. Peters said that $\frac{5}{8}$ of her dance students prefer ballet. Which percent is equivalent to $\frac{5}{8}$?

   A. 58%
   B. 62.5%
   C. 580%
   D. 625%

5. What is the sum of 63 + (−81)?

   A. −144
   B. −18
   C. 18
   D. 144

6. Val scored 85% on a test with 60 multiple-choice problems. How many problems did Val answer correctly?

   A. 51
   B. 45
   C. 33
   D. 25

7. Divide.

   $-960 \div (-8) = \square$

   A. −968
   B. −120
   C. 12
   D. 120

8. Subtract.

$$2\frac{4}{5} - 1\frac{1}{2} = \square$$

A. $6\frac{1}{3}$

B. $2\frac{3}{5}$

C. $1\frac{3}{10}$

D. $1\frac{1}{5}$

9. In an experiment, the temperature fell 48°F in 8 minutes. If the temperature fell at the same rate every minute, how many degrees did it change each minute?

10. Broderick had $420 in his checking account. He made 6 deposits of $35.50 each. He needs to write 4 checks for $310.75 each.

A. Write an integer to represent the total deposits Broderick made and another integer to represent the total amount Broderick needs from his checking account to cover the checks.

Show your work.

B. How much money does Broderick need to add to his account to cover his checks?

Show your work.