

Date Completed: \_\_\_\_\_  
Mentor Initials: \_\_\_\_\_

A mentor can change everything.



## Fractions, Decimals, and Mixed Numbers

- In a class of 11<sup>th</sup> graders, no student participated in more than one of the following extracurricular activities:  $\frac{3}{5}$  of the class played football;  $\frac{1}{4}$  were in the chess club;  $\frac{1}{10}$  were in the car club; and  $\frac{1}{50}$  were in the coding club. What fraction of the class did not participate in any one of these four activities?

  - A. 0
  - B.  $\frac{3}{10,000}$
  - C.  $\frac{3}{100}$
  - D.  $\frac{63}{69}$
  - E.  $\frac{9}{10}$
- Janice estimates that  $\frac{4}{5}$  of a sandwich is left. Carol estimates that  $\frac{5}{6}$  is left. They compromise by using the number halfway between their two estimates. What is their new estimate?

  - A.  $\frac{9}{30}$
  - B.  $\frac{1}{3}$
  - C.  $\frac{9}{11}$
  - D.  $\frac{49}{60}$
  - E.  $\frac{10}{11}$

3. One marble will be randomly selected from a bag of marbles. The probabilities of selecting a green marble and a red marble are  $\frac{3}{13}$  and  $\frac{6}{13}$ , respectively. What is the probability of selecting a green *or* a purple marble?
- A.  $\frac{1}{13}$
- B.  $\frac{9}{26}$
- C.  $\frac{9}{13}$
- D.  $\frac{18}{26}$
- E.  $\frac{18}{169}$
4. Consider the equation  $z = \frac{8}{3}w + 22$ . For what value of  $w$  is the value of  $z$  equal to 18?
- A.  $-\frac{3}{2}$
- B.  $\frac{3}{4}$
- C.  $\frac{4}{3}$
- D.  $\frac{5}{4}$
- E.  $\frac{8}{3}$
5. When  $x = \frac{1}{4}$ , what is the value of  $\frac{16x-3}{x}$ ?
- A.  $\frac{5}{4}$
- B. 4
- C.  $\frac{9}{2}$
- D. 11
- E. 13

6. Ariana ordered a pizza. She ate  $\frac{2}{11}$  of it and gave the remaining pizza to her 6 brothers. What fraction of the whole pizza will each of Ariana's brothers receive, if they share the remaining pizza equally?
- A.  $\frac{3}{22}$   
B.  $\frac{2}{11}$   
C.  $\frac{4}{11}$   
D.  $\frac{5}{22}$   
E.  $\frac{1}{6}$
7. Which of the following lists possible integer values of  $Q$  for which the fraction  $\frac{3}{Q}$  lies between  $\frac{1}{7}$  and  $\frac{1}{4}$ ?
- A. 7 only  
B. 7, 8, 9  
C. 9 only  
D. 11, 12, 13  
E. 13, 14, 15
8. Which of the following expressions is equivalent to  $\frac{\frac{x}{4} + \frac{2}{9}}{\frac{1}{2} - \frac{1}{3}}$ ?
- A.  $\frac{-x+2}{4}$   
B.  $\frac{2x-3}{6}$   
C.  $\frac{2x+3}{6}$   
D.  $\frac{4}{3}x - \frac{2}{3}$   
E.  $\frac{3}{2}x + \frac{4}{3}$

9. A computer has a regular price of \$895.95 before taxes. It goes on sale at 15% below the regular price. To the nearest hundredth, before taxes are added, what is the sale price of the computer?
- A. \$ 745.95
  - B. \$ 761.56
  - C. \$ 795.94
  - D. \$ 810.95
  - E. \$ 880.80
10. Jeremiah has 3 meters of wire. For a school project, he uses all the wire to make one circle of radius 6 cm and one square. To the nearest 0.1 cm, what is the side length of the square? (Note: 1 meter = 100 cm)
- A. 37.3
  - B. 46.7
  - C. 55.8
  - D. 64.6
  - E. 65.6
11. Which of the following arranges the numbers  $\frac{7}{9}$ ,  $0.\overline{07}$ , and  $0.\overline{771}$  into ascending order?
- (Note: The overbar notation shows that the digits under the bar will repeat. For example,  $0.\overline{55} = 0.555555\dots$ )
- A.  $0.\overline{07} < 0.\overline{78} < 0.\overline{771} < \frac{7}{9}$
  - B.  $\frac{7}{9} < 0.\overline{07} < 0.\overline{78} < 0.\overline{771}$
  - C.  $0.\overline{07} < \frac{7}{9} < 0.\overline{771} < 0.\overline{78}$
  - D.  $0.\overline{07} < 0.\overline{771} < \frac{7}{9} < 0.78$
  - E.  $0.78 < \frac{7}{9} < 0.\overline{771} < 0.\overline{07}$

12. Harris and Elie are spray painting their go-kart before the upcoming race. They started with 10 liters of paint. In the first hour, Elie used  $\frac{3}{4}$  liter of paint and Harris used  $2\frac{1}{3}$  liters of paint. How many liters of paint were left after the first hour?
- A.  $5\frac{5}{6}$
- B.  $6\frac{11}{12}$
- C.  $7\frac{11}{12}$
- D.  $8\frac{1}{4}$
- E.  $8\frac{1}{2}$
13. To the nearest 1 yard, what is the height of a rectangular prism with a base length of 12 yards, a base width of  $2\frac{2}{3}$  yards, and a volume of 200 cubic yards?
- A. 4
- B. 6
- C. 7
- D. 8
- E. 12
14. Gina runs at a rate of 7 miles per hour. At that rate, how many miles will she run in 40 minutes?
- A.  $\frac{7}{40}$
- B.  $3\frac{1}{2}$
- C.  $4\frac{2}{3}$
- D.  $\frac{40}{7}$
- E.  $\frac{100}{7}$