Fractions, Decimals, and Mixed Numbers

1. In a class of 11th 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. $\frac{9}{10}$

2. 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 $\dfrac{\frac{x}{4}+\frac{2}{9}}{\frac{1}{2}-\frac{1}{3}}$?

   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 $\frac{7}{9}$, $.78$, $0.\overline{07}$, and $0.\overline{771}$ into ascending order?

    (Note: The overbar notation shows that the digits under the bar will repeat. For example, $0.\overline{55} = 0.5555555\ldots$)

    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. $\frac{100}{7}$