

All these problems appeared on a Gauss Contest, for grade 8 students created by the Centre for Education in Mathematics and Computing at the University of Waterloo. For more contests and other resources visit their website: <http://cemc.uwaterloo.ca>

The sum  $\frac{7}{10} + \frac{3}{100} + \frac{9}{1000}$  is equal to

- (A) 0.937      (B) 0.9037      (C) 0.7309      (D) 0.739      (E) 0.0739

Mark has  $\frac{3}{4}$  of a dollar and Carolyn has  $\frac{3}{10}$  of a dollar. Together they have

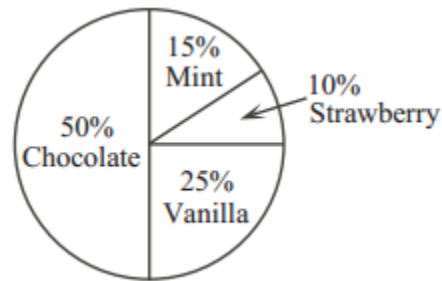
- (A) \$0.90      (B) \$0.95      (C) \$1.00      (D) \$1.10      (E) \$1.05

$\frac{1}{2} + \frac{1}{4} + \frac{1}{8}$  is equal to

- (A) 1      (B)  $\frac{1}{64}$       (C)  $\frac{3}{14}$       (D)  $\frac{7}{8}$       (E)  $\frac{13}{64}$

The circle graph shows the favourite ice cream flavours of those surveyed. What fraction of people surveyed selected either chocolate or strawberry as their favourite flavour of ice cream?

- (A)  $\frac{3}{5}$       (B)  $\frac{1}{3}$       (C)  $\frac{2}{3}$   
(D)  $\frac{3}{4}$       (E)  $\frac{5}{8}$



Andrea has finished the third day of a six day canoe trip. If she has completed  $\frac{3}{7}$  of the trip's total distance of 168 km, how many km per day must she average for the remainder of her trip?

- (A) 29      (B) 24      (C) 27      (D) 32      (E) 26

Lara ate  $\frac{1}{4}$  of a pie and Ryan ate  $\frac{3}{10}$  of the same pie. The next day Cassie ate  $\frac{2}{3}$  of the pie that was left. What fraction of the original pie was not eaten?

- (A)  $\frac{9}{10}$       (B)  $\frac{3}{10}$       (C)  $\frac{7}{60}$       (D)  $\frac{3}{20}$       (E)  $\frac{1}{20}$

If each of the four numbers 3, 4, 6, and 7 replaces a  $\square$ , what is the largest possible sum of the fractions shown?

- (A)  $\frac{19}{12}$       (B)  $\frac{13}{7}$       (C)  $\frac{5}{2}$   
(D)  $\frac{15}{4}$       (E)  $\frac{23}{6}$

$$\frac{\square}{\square} + \frac{\square}{\square}$$

$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$  equals

- (A)  $3\frac{1}{3}$       (B)  $7 + \frac{1}{3}$       (C)  $\frac{3}{7}$       (D)  $7 + 3$       (E)  $7 \times \frac{1}{3}$

Keegan paddled the first 12 km of his 36 km kayak trip before lunch. What fraction of his overall trip remains to be completed after lunch?

- (A)  $\frac{1}{2}$       (B)  $\frac{5}{6}$       (C)  $\frac{3}{4}$       (D)  $\frac{2}{3}$       (E)  $\frac{3}{5}$

Which of the following is *not* equal to  $\frac{15}{4}$ ?

- (A) 3.75      (B)  $\frac{14+1}{3+1}$       (C)  $\frac{3}{4} + 3$       (D)  $\frac{5}{4} \times \frac{3}{4}$       (E)  $\frac{21}{4} - \frac{5}{4} - \frac{1}{4}$

The smallest number in the set  $\{\frac{1}{2}, \frac{2}{3}, \frac{1}{4}, \frac{5}{6}, \frac{7}{12}\}$  is

- (A)  $\frac{1}{2}$       (B)  $\frac{2}{3}$       (C)  $\frac{1}{4}$       (D)  $\frac{5}{6}$       (E)  $\frac{7}{12}$

The spinner shown is divided into 6 sections of equal size. What is the probability of landing on a section that contains the letter *P* using this spinner?

- (A)  $\frac{3}{6}$       (B)  $\frac{4}{6}$       (C)  $\frac{5}{6}$   
(D)  $\frac{2}{6}$       (E)  $\frac{1}{6}$



Which of these fractions is equivalent to  $\frac{15}{25}$ ?

- (A)  $\frac{3}{4}$       (B)  $\frac{2}{3}$       (C)  $\frac{3}{5}$       (D)  $\frac{1}{2}$       (E)  $\frac{5}{7}$

The value of  $\frac{2}{5} + \frac{1}{3}$  is

- (A)  $\frac{3}{8}$       (B)  $\frac{2}{15}$       (C)  $\frac{11}{15}$       (D)  $\frac{13}{15}$       (E)  $\frac{3}{15}$

There are 2 red, 5 yellow and 4 blue balls in a bag. If a ball is chosen at random from the bag, without looking, the probability of choosing a yellow ball is

- (A)  $\frac{2}{11}$       (B)  $\frac{5}{11}$       (C)  $\frac{4}{11}$       (D)  $\frac{6}{11}$       (E)  $\frac{7}{11}$

A fraction is equivalent to  $\frac{5}{8}$ . Its denominator and numerator add up to 91. What is the difference between the denominator and numerator of this fraction?

- (A) 21      (B) 3      (C) 33      (D) 13      (E) 19

At a class party, each student randomly selects a wrapped prize from a bag. The prizes include books and calculators. There are 27 prizes in the bag. Meghan is the first to choose a prize. If the probability of Meghan choosing a book for her prize is  $\frac{2}{3}$ , how many books are in the bag?

- (A) 15      (B) 9      (C) 21      (D) 7      (E) 18

The value of  $\frac{1}{2} - \frac{1}{8}$  is

- (A)  $\frac{3}{8}$       (B)  $-\frac{1}{6}$       (C)  $\frac{5}{8}$       (D)  $\frac{1}{16}$       (E)  $\frac{1}{4}$

Which of the following fractions has the largest value?

- (A)  $\frac{8}{9}$       (B)  $\frac{7}{8}$       (C)  $\frac{66}{77}$       (D)  $\frac{55}{66}$       (E)  $\frac{4}{5}$

A box contains 1 grey ball, 2 white balls and 3 black balls. Without looking, John reaches in and chooses one ball at random. What is the probability that the ball is *not* grey?

- (A) 1      (B)  $\frac{2}{6}$       (C)  $\frac{3}{6}$       (D)  $\frac{4}{6}$       (E)  $\frac{5}{6}$

Kalyn is trying out a new recipe that calls for 5 cups of flour and 1 cup shortening. She only has  $\frac{2}{3}$  cup of shortening, and uses all of it. How much flour should she use to keep the ingredients in the same ratio as called for in the recipe?

- (A)  $2\frac{1}{3}$       (B)  $3\frac{1}{3}$       (C)  $1\frac{2}{3}$       (D)  $1\frac{1}{3}$       (E) 2

If  $\frac{1}{2}$  of  $\frac{2}{3}$  of the twelve small squares in the given figure are removed, how many squares remain?

