

Algonquin & Lakeshore Catholic District School Board  
Elementary School Math League Tournament  
2016

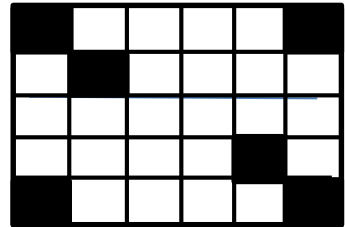
Individual Round - Grade 7

Name: \_\_\_\_\_ Team # \_\_\_\_\_ School: \_\_\_\_\_

\_\_\_\_\_ 1.  $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} = ?$

\_\_\_\_\_ 2. David drove the first 18 km of his 54 km drive to Marmora when he stopped for a juice break. What fraction of his overall trip is left for him to complete?

\_\_\_\_\_ 3. In the diagram, each small square in the grid is the same size. What percent of the grid is shaded?

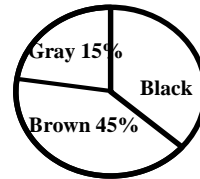


\_\_\_\_\_ 4. What number is B?  $(5 \times 1) + (5 \times 2) + (5 \times 3) + (5 \times 4) = 5 \times B$

\_\_\_\_\_ 5. In  $\triangle ABC$ ,  $\angle B = 72^\circ$ . What is the sum, in degrees, of the other two angles?

\_\_\_\_\_ 6. Write  $6\frac{3}{7}$  as an improper fraction in the form  $\frac{A}{B}$ . What is  $A + B$ ?

\_\_\_\_\_ 7. The results of a survey of the hair colour of 500 people are shown in this circle graph. How many people have black hair?



\_\_\_\_\_ 8. A bag contains green mints and red mints only. If 75% of the mints are green, what is the ratio of the number of green mints to the number of red mints?

\_\_\_\_\_ 9. A rectangular prism has a volume of  $186 \text{ cm}^3$ . The area of the base is  $31 \text{ cm}^2$ . What is its height?

\_\_\_\_\_ 10. Which number is the largest odd integer that contains the digit 5, is divisible by 3, and lies between  $12^2$  and  $13^2$ ?

\_\_\_\_\_ 11. Two trains are heading towards each other at 30 m/s. They are initially 1 km apart. How far apart are they after 10 s?

\_\_\_\_\_ 12. Fred weighs half as much as Frank, and Finnigan weighs three times as much as Fred. Together, they weigh 720 pounds. How much does Finnigan weigh?

\_\_\_\_\_ 13. How many positive integers less than 400 can be created using only the digits 1, 2 or 3, with repetition of digits allowed?

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- \_\_\_\_\_ 14. A student may pay \$1.50 for a single bus ticket or \$5.75 for a package of 5 tickets. If a student requires 40 tickets, how much does she save by buying all of the tickets in packages of 5 rather than buying 40 single tickets?
- \_\_\_\_\_ 15. The numbers 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 are written on separate cards and placed face down on a table. A card is chosen at random and flipped over. What is the probability that the number on this card is a prime number?

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1. 15/8      2. 2/3      3. 20%      4. 10      5. 108      6. 52      7. 200  
8. 3:1      9. 6      10. 165      11. 400      12. 360      13. 39      14. 14  
15. 5/11

11. (10, 25)

**Solution:**

Leading number sequence is 2, 4, 6, 8, 10

The 2nd number sequence is 1, 4, 9, 16, 25

14. If the student were to buy 40 individual tickets, this would cost  $40 \times \$1.50 = \$60.00$ . If the student were to buy the tickets in packages of 5, she would need to buy  $40 \div 5 = 8$  packages, and so this would cost  $8 \times \$5.75 = \$46.00$ . Therefore, she would save  $\$60.00 - \$46.00 = \$14.00$ .

15. Of the given 11 numbers, the numbers 3, 5, 7, 11 and 13 are prime. (4, 6, 8, 10 and 12 are not prime, since they are divisible by 2, and 9 is not prime since it is divisible by 3.) Therefore, 5 of the 11 numbers are prime. Thus, if a card is chosen at random and flipped over, the probability that the number on this card is a prime number is  $5/11$ .