MOUNT ROYAL UNIVERSITY 1910

Eighth Annual
Calgary Elementary School Mathematics Contest
April 24, 2019

LEVEL-2 CONTEST

Instructions:

- You have 50 minutes to answer the 20 questions.
- Record your answer for each question on the separate answer sheet.
- There is no penalty for incorrect answers, so answer every question.
- Good luck!

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Pacific Institute *for the* Mathematical Sciences

PART A: Record the correct answer on the separate answer sheet. Each correct answer is worth **5 points.**

1. $7 + 77 + 777 + 7777 = 7 \times \underline{?}$
   (a) 1111 (b) 1112 (c) 1123 (d) 1234

2. A number is a perfect square if its square root is a positive whole number. For example, 100 is a perfect square because $\sqrt{100} = 10$. Which of the following numbers is the sum of two different perfect squares?
   (a) 8 (b) 9 (c) 24 (d) 25

3. The current year is 2019. How many years will it be before the sum of the digits in the year is greater than it is this year? [Note: for the year 1992 the sum of the digits is 1+9+9+2=21]
   (a) 1 year (b) 5 years (c) 10 years (d) 90 years

4. Shawn has a piece of string that is 16 cm long. He cuts it in half to make 2 pieces that are each 8 cm long. He continues cutting each piece in half until he has 16 pieces each 1 cm long. How many total cuts has he made?
   (a) 4 (b) 7 (c) 15 (d) 16

5. The sum of the ages of Angie and her father is 48 now. What will be the sum of their ages in 10 years from now?
   (a) 58 (b) 68 (c) 70 (d) 74

6. A positive whole number has three different digits. If the product of its digits is 6, what is the sum of its digits?
   (a) 6 (b) 5 (c) 8 (d) 7

7. The Product of two prime numbers is always:
   (a) prime (b) odd (c) even (d) composite

8. Amit goes to sleep at 10:27 on Sunday night. His alarm wakes him up exactly at 6:25 am on Monday morning. For how long did he sleep?
   (a) 4 hrs, 2 min (b) 8 hrs (c) 7 hrs, 58 min (d) 8 hrs, 2 min

9. The coins in my pocket include some quarters, dimes, nickels and exactly 7 pennies. Which of the following *can not* be the total value of all the coins?
   (a) \$1.25 (b) \$0.77 (c) \$5.22 (d) \$8.02

10. The number 42 is divisible by the sum of its digits, because $4 + 2 = 6$ and 42 is divisible by 6. How many numbers are there between 20 and 30 (not including 20 and 30) which are divisible by the sum of their digits?
    (a) 2 (b) 3 (c) 4 (d) 5

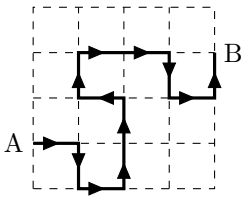
PART B: Record the correct answer on the separate answer sheet. Each correct answer is worth **6 points.**

11. 3 Basketballs cost the same as 4 soccer balls. If one soccer ball costs \$12, how much does one basketball cost?
(a) \$4 (b) \$9 (c) \$16 (d) \$48

12. A candy store is having a sale.: buy three and get a fourth one for free. If one candy costs 25 cents, how many candies can you buy with \$12?
(a)72 (b) 64 (c)48 (d) 36

13. Jagmeet has a brother and a sister. From a box of candies, all three of them eat a candy on the first day. Jagmeet eats one candy every day, his brother eats one candy every other day and his sister eats one candy every three days. By the end of the 12th day, how many candies have been eaten by all three of them?
(a) 22 (b) 21 (c) 19 (d) 72

14. In the following diagram, each little square has perimeter 8cm. An ant walks along the indicated path from A to B. How far did the ant walk?



(a) 96cm (b) 24cm (c) 16cm (d) 12cm

15. A palindrome is a number which remains the same when its digits are written in reverse order. For example 18281 is a palindrome. Randy's car's odometer reads 163,362. What is the least number of kilometers the car should travel for the next palindrome to appear on his odometer?
(a) 100,000 (b) 10,009 (c) 1,099 (d) 1,009

PART C: Record the correct answer on the separate answer sheet. Each correct answer is worth **8 points.**

16. Jinfen was born on March 15, 2007. How many days is it until her 10th birthday?
Hint: A year is a leap year if it is divisible by 4, e.g. $1948 = 4 \times 487$ was a leap year.
(a) 3650 (b) 3651 (c) 3652 (d) 3653

17. Mariya and Ganesh are each given 12 squares, each is 1cm by 1cm. Mariya uses all 12 of hers to make a rectangle with the largest possible perimeter. Ganesh uses all 12 of his to make a rectangle with the smallest possible perimeter. What is the difference in perimeter for these two rectangles?
(a) 2cm (b) 10cm (c) 12cm (d) 20cm

18. In a big basket there are 600 bananas. Four monkeys are trying to steal these bananas. The first monkey took one half of them. The second took one third of the remaining bananas. The third monkey then took one fourth of the remaining bananas. Finally the last monkey took one fifth of the remaining bananas. In the end, how many bananas are left in the basket?
(a) 120 (b) 150 (c) 180 (d) 200

19. Romeo likes to add the digits that he sees on his digital clock. For example, if the clock shows 15:21, Romeo gets the sum 1+5+2+1 = 9. What is the biggest sum he can get from his 24-hr clock?
(a) 18 (b) 22 (c) 24 (d) 36

20. In the following equation, each letter represents a digit from 0 to 9. Different letters represent different digits. Which digit does the letter A represent?

$$\begin{array}{rr} & A \\ & A \\ + & BB \\ \hline & CCC \end{array}$$

(a) 6 (b) 8 (c) 3 (d) 9