Mahinda Rajapaksha College
First Term Examination - 2013
Mathematics
Grade 7

Paper I	
Paper II	
Total	

Time - 2 hours

Name: .... **Class:** ....
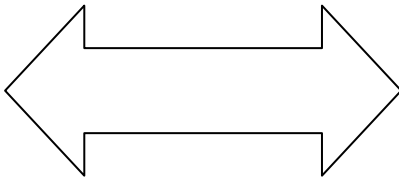
Part I

- **Answer all the questions on this paper itself.**

1)

Draw the axes of symmetry of the given diagram.

How many axes of symmetry on it?

……………………………………………………………….

2) A≡ { Multiples of 4 less than 20}

List out the above set.

……………………………………………………………………………

3) (i) If the number 135☐ is divisible by 3, write the suitable digit for the blank cage.

(ii) If above number is a multiple of 4 what is the suitable digit for the blank.

…………………………………………………………………………

4) When writing 36, as a product of prime numbers two digits has missed. Find that numbers and write.

$$36 = 2 \; X \; ………….. \; X ………….. \; X \; 3$$

5) Find out the highest value that both the numbers 30 and 45 can be divided without remainders.

…………………………………………………………………………

6) (i) Is the year 1896 a leap year? …………………………………………..

(ii) What is the leap year came after 1896? …………………………………..

7) Fill in the blanks.

$3 \times a \times a \times b \times b \times 3 \times b = 3^{\boxed{}} \times a^2 \times \boxed{}^3$

8) Find the duration from the date of our 1st independence day to today.

………………………………………………………………………………………..

9) The mass of a rise bag is 5kg 50g.Find the mass of such 8 bags.

…………………………………………………………………………………………..

10)
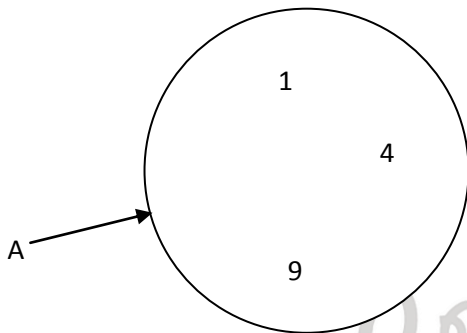
The diagram represents a set. What are the other 2 methods that this set can be represented?

…………………………………………………………………….

11)
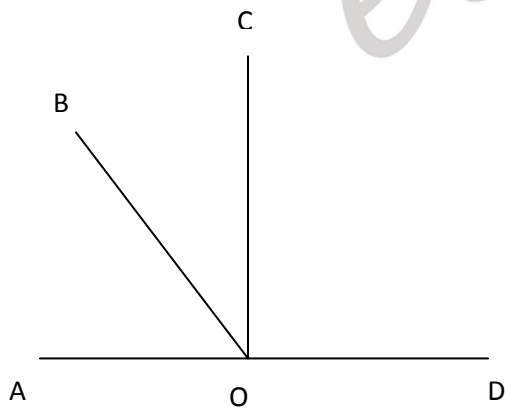
Name an acute angle and an obtuse angle in the diagram.

…………………………………………………………………….

12) Express 128 as a power of 2.

……………………………………………………………………

13) Find the value of $3a^2b^3$, if $a = 3$ and $b = 2$.

………………………………………………………………………….

14) (i) What is the century that the year 2013 is belonged? …………………………………………

(ii) What is the last year of that century? …………………………………………………………

15) Simplify.

$$\frac{1}{5} + \frac{1}{2}$$

………..

16) Arrange the following directed numbers into ascending order.

+5, -3, 0, -8, $+7\frac{1}{2}$

17) Father brought 5kg of rice and mother cooked 1kg 50g from it. Find the remained rice quantity.

………

18) In a mathematics assessment Chamath got $\frac{13}{25}$ marks and Supun got $\frac{6}{10}$ marks. Who is the best?
Give reasons.

………

19) Draw a figure with four symmetrical axes.

………

20) (i) Find the digital index of 172041. …………………………………………..

(ii) Write a number that above number can be divided without a remainder.

Mahinda Rajapaksha College

(Marks 2 x 20 = 40)

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Part II

- **Answer the first question and other 4 questions only. (Show all the workings)**

1) Remind the wall paper which you have done relevant to the lessons symmetry and sets. Answer the following questions according to that activity.

   i. Write two materials used for that activity. (2 marks)

   ii. Draw two figures having 2 symmetrical axes and 3 symmetrical axes. Mark the axes of symmetry. (2marks)

   iii. Describe what a set is and write the ways of representing them. (2 marks)

   iv. Paper of a newspaper, black board , jack leaf , teacher's table , man , butterfly , mat , protactor , letter of A , Maths text book.
   Separate the above materials into two 2 sets and represent them in Venn diagrams (4 marks)

   v. Write a figure which has infinite number of axes of symmetry. (2 marks)

   vi. Write two good qualities that you can get from this activity. (2 marks)

   vii. Write a name of a mathematician who expressed ideas about sets (2 marks)

2) Kamal denotes the number 72 as a product of prime factors like this.

$$72 = 2 \times 2 \times 2 \times 9$$

   i. Are the above factors correct? If not give the reason. (2 marks)

   ii. Write 48 as a power of prime factors (2 marks)

iii. Find the H.C.F of 48 and 72 using the prime factors of 48 and 72. (3 marks)

iv. Find the L.C.M of 48 and 72 using the product of prime factors. (2 marks)

v. Write another two numbers which can be divided by both 48 and 72 (2 marks)

3) (A)
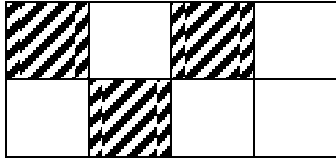
(a)
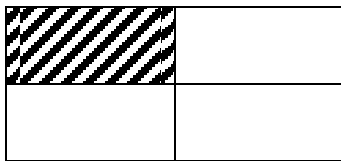
(b)

i. What are the fractions represented by **a** and **b** (2 marks)

ii. Separate the second figure in a suitable way to find the largest fraction from the above two figures

(1 mark)

iii. What is the largest fraction from (**a**) and (**b**) (1 mark)

iv. Simplify

$$\frac{2}{5} - \frac{1}{2} + \frac{1}{3}$$ (3 marks)

(B)

i. Write two objects that numbers are illustrated on a curved line (2 marks)

ii. Add using a number line
    (+3) + (-4) (2 marks)

4) (A) Amali's father is 25 years 4 months and 25 days older than her. Amali's date of birth is 14.02.2002

i. Is 2002 a leap year? (1 mark)

ii. What is the century that the above year belongs to? (2002) (1 mark)

iii. What is the last day of the above century? (2 marks)
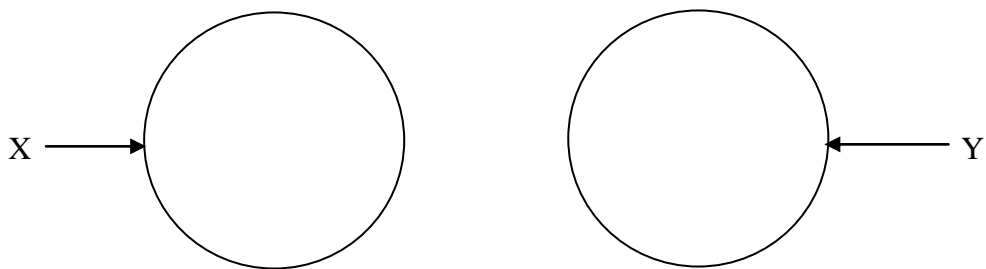
iv. What is the date of birth of Amali's father? (3 marks)

(B)

i. Amali's mother's age is 36 years. Express that age as a power. (2 marks)

ii. When 64 is expressed as a power its index is 3.What is its base? (2 marks)

5) (A)

$$\boxed{\text{A, B, C, D, E, F, G, H, I, J}}$$

i. Select the letters with bilateral symmetry from the above letters? (2 marks)

ii. Separate them into two groups and represent in Venn diagrams (2 marks)

iii. Write two suitable names for the sets X and Y (2 marks)

(B) Fill in the blanks

(Put "√" mark if the given number is divisible by the relative number. Put "X" mark if the given number is not divisible by the relative number)
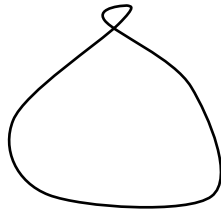
Number	Digital index	Divisible by 3 or not divisible by 3	Divisible by 4 or not divisible by 4	Divisible by 6 or not divisible by 6	Divisible by 9 or not divisible by 9
232044	…………	…………	…………	…………	…………
475272	…………	…………	…………	…………	…………

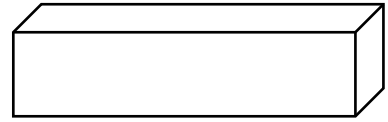(5 marks)

6) (A) Two parcels named A , B and a box is given in the diagram. By using their masses answer to the following questions.
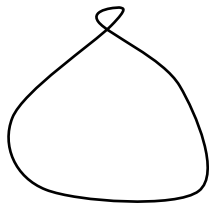
4.05 kg $3\frac{1}{5}$ kg   625g 500mg

i.   What is the mass of parcel 'B' in grammes?   (1 mark)

ii.   What is the total mass of parcel A and B?   (2 marks)

iii. How much is A heavier than B?   (2 marks)

iv.   Parcel A is divided into 5 equal parcels. What is the mass of a small parcel?   (2 marks)

v.   When 2 parcels with the mass of A and 3 parcels with the mass of B are put into the above box, what is the total mass of the box.   (4 marks)

7) (A)

i.   Write all the factors of 24   (2 marks)

ii.   Write the prime factors from the above factors   (1 mark)

iii. Write 24 as a product of powers of prime factors   (2 marks)

(B) If a=2 , b= 3 substitute the given values and fill the table   (6 marks)

Expression	Substitution	Expression as expanded form	Value
$2a^3b$	…………………	…………………	…………………
$3(ab)^2$	…………………	…………………	…………………