

MOSCROP MATH 8 ENRICHED ENTRANCE EXAM

APRIL 2, 2012

NAME: _____

ELEMENTARY SCHOOL: _____

Teacher: _____

Time: 1 hour 45 minutes

Part A is a **NON-CALCULATOR** section. Students are to complete part A without a calculator and then submit it to the teacher before moving on to Part B. Students have up to 45 minutes to complete Part A and a total of 1 hour and 45 minutes for the entire exam.

In Part B and C, calculators are allowed. Students will need to show all their work and justification to earn full marks. All answers must be exact or accurately rounded to 3 decimal places unless specified otherwise.

The exam consists of 10 questions in Part A, 5 questions in Part B, and 2 questions in Part C. Each question in Part A is worth 3 marks, Part B is 4 marks, and Part C is 5 marks. You can earn full marks of each question in Part A by entering the correct answer in the indicated space. If your answer is incorrect, work must be shown to be given any partial marks.

Section	Questions	Values	Total	Score
Part A	10	3	30	
Part B	5	4	20	
Part C	2	5	10	
Total			60 marks	

Name: _____

Elementary School: _____


Part A:

1. How many prime numbers are there between 1 to 30?

Answer: _____

2. What is the average value of -10 , 9 , 4 , 8 , and 3

Answer: _____

3. The following pattern repeats itself continually:  $+$ \triangle \square \circ \heartsuit \star $+$ \triangle \square \circ \heartsuit \star
What is the 2012th figure?

Answer: _____

4. Tom has 15 red marbles and 4 blue marbles in a bag. How many blue marbles should he add in the bag so that there will be 40% blue?

Answer: _____

5. What is the value of $\left(\frac{6 + 3^2 \times (2 + 4) - 12 \div 3}{2^2 + 3} \right)$?

Answer: _____

6. Evaluate the following and express your answer as a complete fraction: $\frac{4}{3} \times \frac{9}{8} + \frac{36}{28} \div \frac{27}{14}$

Answer: _____

7. Sean has \$72 and earns \$6 each day. Jake has \$48 and earns \$8 each day. In how many days will Jake have as much money as Sean?

Answer: _____

8. What is the sum of the greatest common factor and least common multiple of 24 and 45?

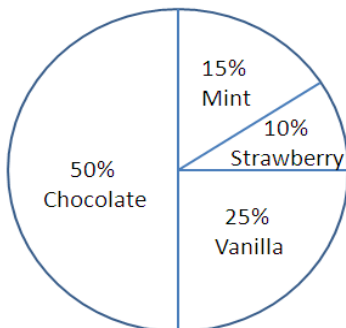
Answer: _____

9. Given that all the rows, columns and diagonals have the same sum, what is the value of "x"?

		24
97	-18	
y		x

Answer: _____

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



Answer: _____

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PART B:

11. Given that a rectangle has an area of 36cm^2 and all sides have integer lengths, what is the largest possible perimeter for the figure?

Answer: _____

12. A number of patients were surveyed at a hospital and they were classified by gender and blood type, as shown in the table below. If 50% of the patients surveyed were male, how many of the female patients surveyed were TYPE A?

	Type A	Type B	Type O	Type AB	TOTAL
Male	45	60	80	15	200
Female	?	40	100	5	?
TOTAL	?	100	180	20	?

Answer: _____

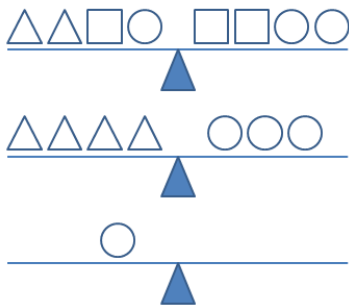
13. What is the last digit [aka: units digit] in the expansion of 7^{2012} ?

Answer: _____

14. The energy saved from 2 recycled aluminum can will operate a television set for 3 hours. How many aluminum cans would have to be recycled to furnish enough energy to operate 630 television sets for 5 hours per day for 1 week?

Answer: _____

15. If only squares may be used, how many squares must be placed on the right side of the third scale so that all three scales are balanced? (The distance of the objects from the centers of these scales is not relevant)



Answer: _____

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PART C:

16. What is the number of all possible four digit numbers that are divisible by 4 which use the digits 4, 6, 7, and 8 each exactly once? List out the numbers and show your work.

Answer: _____

17. An integer " n " is called "triplly odd" if when you divide " n " by 3, you get an odd integer whose digits add up to an odd multiple of 3. How many triply odd integers are there between 1 and 300?

Answer: _____