MOSCROP MATH 8 ENRICHED ENTRANCE EXAM

APRIL 12, 2018

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 45minutes 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	2	20	
Part B	5	3	15	
Part C	2	5	10	
Total			45 marks	

Name:_____ **Elementary School:**_____

Part A:

1. Evaluate: $2 \div 0.0001$

Answer:_____

2. Evaluate: $\frac{1 \times 2 \times 3 \times 4 \times 5}{1+2+3+4+5}$

Answer:_____

3. Evaluate: $\frac{13}{9} + 1\frac{2}{3}$

Answer:_____

4. Three people are standing in line to buy food and they each make the following statements:

   Alan: Bob is not in last place

   Bob: Chris is in first place

   Chris: Alan is not in second place.

   If only Chris is telling the truth, what is the order that they are standing in?

Answer:_____

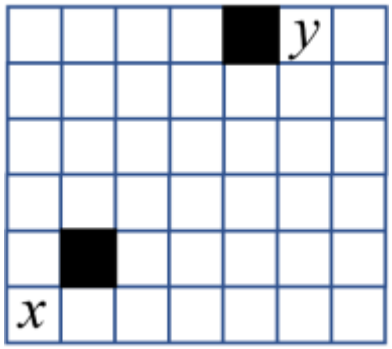
5. 8 people went to movies and the total cost of all the tickets was $102. How much would 3 tickets cost?

Answer:_____

6. One lizard can eat 3 apples in a day and one turtle can eat 4 apples in a day. How many apples can 3 lizards and 4 turtles eat in 5 days?

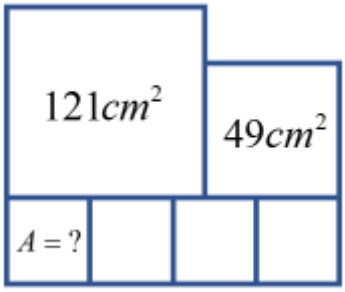
Answer:_____

7. A video game has four buttons that control a character on a map.
   Button “A” moves the character “up” then “right”.
   Button “B” moves the character “up”, “up” and then “right”.
   Button “C” moves it “right” then “down”.
   Button “D” moves it “right” then “up”.
   What is the shortest sequence of buttons that you need to press to go from “X” to “Y”?
   Note: the two black boxes are obstacles that you can not go through.



Answer:_____

8. The area of the two larger squares are given. If the four smaller squares are the same size, then what is the area of one of the smaller squares?

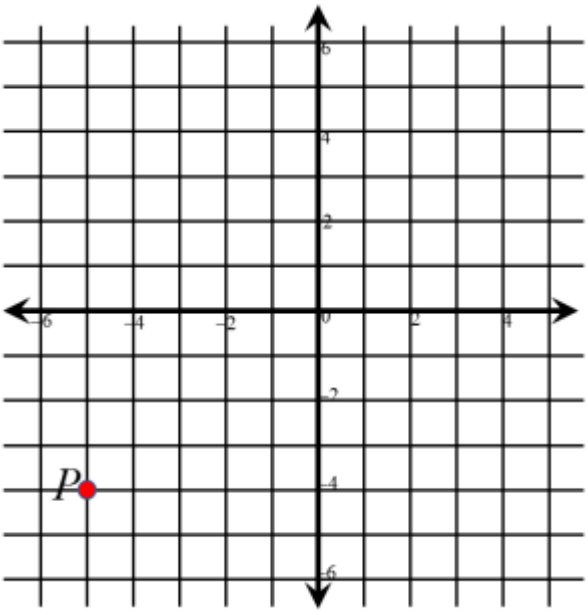


Answer:_____

9. David has a collection of marbles that are either red, blue, or yellow. 1/3 of his marbles are red, ¼ of the marbles are blue, and 20 of them are yellow. How many marbles does he have altogether?

Answer:_____

10. A game has four buttons that moves the point P(-5,-4) over the cartesian plane below. Button "A" moves up two units and right 3 units. Button "B" moves 1 unit down and 2 units left. Button "C" moves 4 units up and 2 downs right. Button "D" moves 3 units down and 1 units left. If I press buttons "A", A", "B", C", "D" and "B", where would point "P" result in? What will the coordinates be?



Answer:_____

Name:_____ **Elementary School:**_____

PART B:

1. Jack gets paid $1 on Mondays, $2 on Tuesdays, $3 on Wednesdays, $4 on Thursdays, $5 on the Fridays, $6 on the Saturdays, $7 on Sundays. The cycle repeats itself each week.

a) If he works 100 days straight starting from Monday, then how much does he get on the 100^{th} day? (1mark)

Answer:_____

b) If he was paid $454 all together, how many days has he worked in total (2marks)

Answer:_____

2. There are five whole numbers on a number line. “A” is the smallest and “B” is the largest. “C” is in the midpoint between “A” and “B”. “D” is in the midpoint between “C” and “A”. “E” is in the midpoint between “D” and “A”. If $A+B=90$, then what is the largest value that “A” can be? (3marks)

Answer:_____

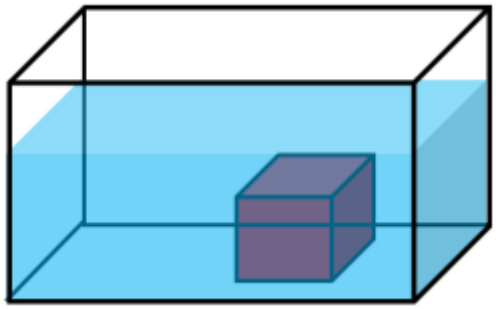
3. A triangle requires 3 toothpicks and a square requires 4 toothpicks. If 134 toothpicks are used and 39 shapes are made, how many triangles and squares are there? Show all your work and steps (3marks)

Answer:_____

4. A large wheel with a radius of 1.5 meters rolls 5 rotations along a straight line. How many rotations would a smaller wheel with a radius of 0.8m need to roll to cover the same distance in length? Show all your work and steps (3marks) Note: $C = 2\pi r$ and $A = \pi r^2$

Answer:_____

5. A rectangular prism that is 20cm long, 10cm wide, and 30cm tall is 60% filled with water. A small solid cube that is 8cm by 8cm by 8cm is placed into the rectangular prism and raises the height of the water. What is the height of the water level with the cube inside? Show all your work and steps (3marks) Note: The volume of a rectangular prisms is length times width times height.

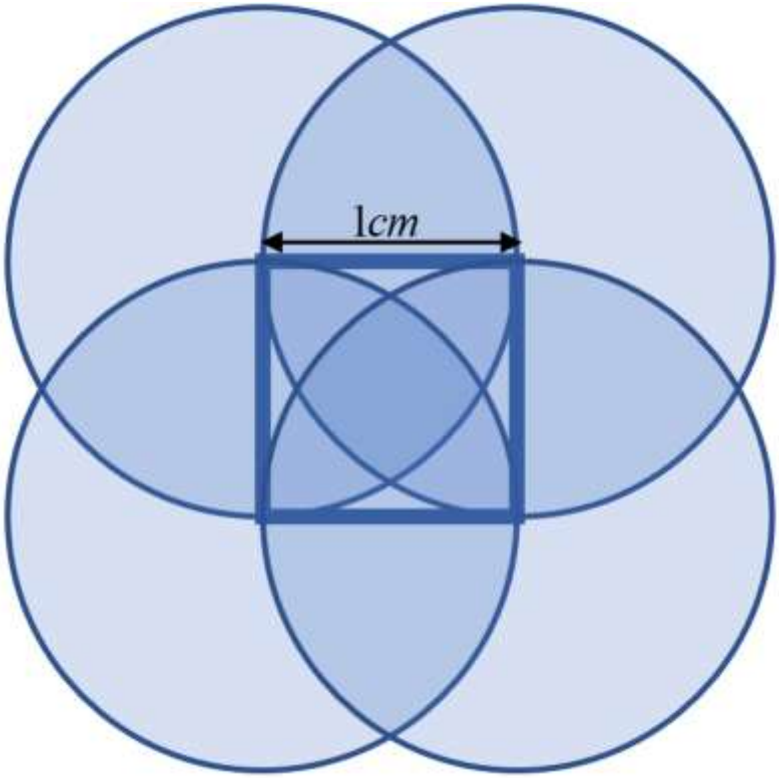


Answer:_____

Name:_____ **Elementary School:**_____

PART C:

1. The following shape is a square with side length of 1cm with four circles of radius 1cm centred on each corner of the square. What is the area of the following shape? (Use the back of this page if you need more space)



Answer:_____

2. Tony and Maria are training for a race by running all the way up and down a 700m long ski slope. They each run up the slope at different constant speeds. Coming down the slope, each runs at double his or her uphill speed. Maria reaches the top first, and immediately starts running back down, meeting Tony 70m from the top. When Maria reaches the bottom, how far behind is Tony? Show all your work and steps to earn full marks. Explain all your steps. (5marks). Use the back of this sheet if you need more space.

Answer:_____