Burnaby South Grade 8 Honours PRACTICE Math Entrance exam

Part A: Multiple Choice Questions, NO CALCULATORS ALLOWED **Suggested time: 30 minutes**

Maximum allowed: 45 minutes

1. Look at the following Input/Output table. Which of the following relations fit the pattern in the table?

Input n	Output p
1	3
2	8
3	13
4	18

a. n + 2 = p
b. 4n = p
c. p = 3 + 8 + 13 + 18
d. p = 5n – 2
e. 2n + 5 = p

2. Look at the following sentence: "A number is multiplied by 3, and then 7 is added. The result is 31." What is the correct equation that represents the sentence, and what is the number?

   a. Equation: n + 7 x 3 = 31, Number: n = 8
   b. Equation: 3n + 7 = 31, Number: n = 10
   c. Equation: n + 7 x 3 = 31, Number: n = 10
   d. Equation: 3n + 7 = 31, Number: n = 8
   e. Equation: 7n + 3 = 31, Number: n = 8

3. Evaluate: (-5) – (-3) + (-7) = _____ ?

   a. -9 b. -15 c. -1 d. -5 e. 5

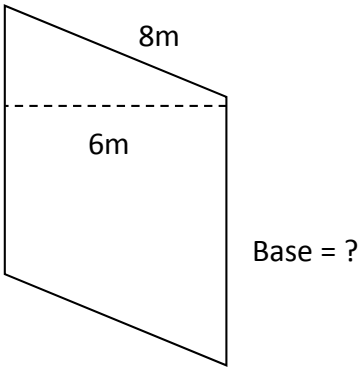
4. Evaluate: 7.2 ÷ (2.4 – 1.8) – 1.5 x 3 = _____ ?

   a. -0.9 b. 31.5 c. 7.5 d. 5.7 e. 34.5

5. Bob goes shopping at his favorite store and finds a hat that is regularly priced at $40, but it is on sale for 20% off. The sales tax on the hat is 10% of the sale price. How much does Bob end up paying for the hat?

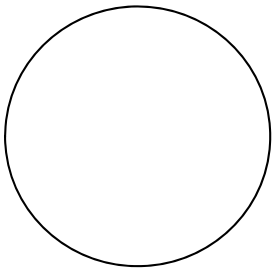
a. $52.00 b. $36.00 c. $28.00 d. $35.20 e. $43.90

6. The following parallelogram has an area of 48m^2. What is the correct length of the base, given the following measurements? (the diagram is not drawn to scale.)



a. 6m b. 8m c. 10m d. 12m e. 14m

7. The circumference of a circle is 20π metres. What is the area of the circle?



a. 100π m^2 b. 400π m^2 c. 40π m^2 d. 60π m^2 e. 200π m^2

8. Subtract. Write your answer in simplest form. $\frac{6}{4} - \frac{2}{3} = ?$

a. $\frac{5}{6}$ b. $\frac{4}{1}$ c. $\frac{4}{7}$ d. $\frac{1}{3}$ e. $\frac{10}{12}$

9. Add. Write your answer in simplest form. $3\frac{5}{6} + 1\frac{4}{6} = ?$

a. $4\frac{9}{12}$ b. $4\frac{9}{6}$ c. $5\frac{1}{2}$ d. $5\frac{3}{4}$ e. $5\frac{1}{6}$

10. Solve the equation: 8y – 17 = 71

a. y = 17 b. y = 6.75 c. y = 8 d. y = 11 e. y = 5

11. Marcus went to a sporting goods store and bought 4 basketballs and 2 tennis racquets. The basketballs were all the same price, and the tennis racquets were $60 each. The total cost was $200. What was the cost of one basketball?

a. $60 b. $50 c. $80 d. $30 e. $20

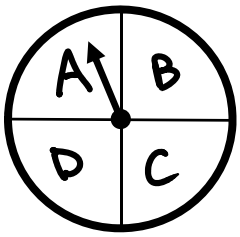
12. In a basketball game, the 8 players on a school team had the following scores:

4 6 6 6 8 12 12 26

What is the difference between the mode and the median?

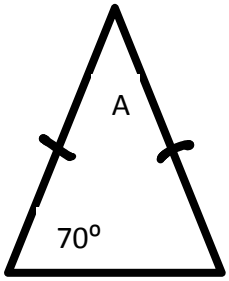
a. 0 b. 1 c. 2 d. 3 e. 4

13. A spinner has 4 regions, labelled A, B, C, and D. The spinner is spun once, and the letter is recorded. Then the spinner is spun a second time, and the letter is recorded. Find the theoretical probability of getting the spinner to land on the same letter both times. (Draw a tree diagram if it helps!)



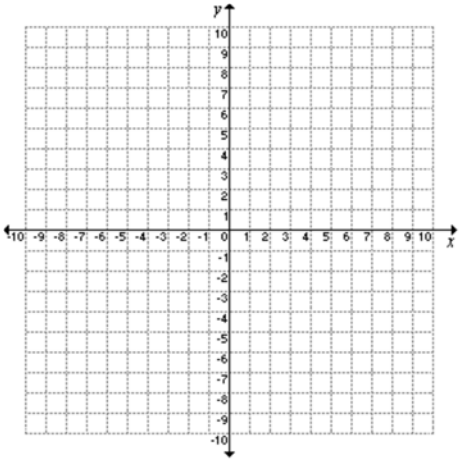
a. $\frac{1}{2}$ b. $\frac{1}{4}$ c. $\frac{1}{8}$ d. $\frac{1}{12}$ e. $\frac{1}{16}$

14. An isosceles triangle is shown below. What is the measure of angle A in the triangle? The diagram is not drawn to scale.



a. 40° b. 50° c. 30° d. 60° e. 70°

15. Point A has coordinates of (4, -6). It is reflected across the x-axis, and then it is translated left 3 and down 1. What are the new coordinates of the point after the two transformations?



a. (1, 5) b. (-7, -7) c. (1, -7)

d. (-7, 5) e. (1, 7)

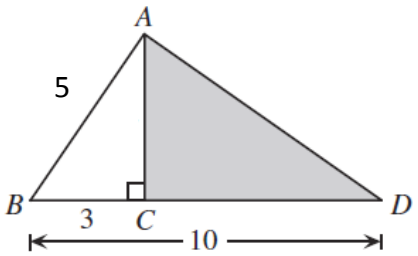
END OF PART A. CHECK YOUR ANSWERS AND THEN HAND THIS PART IN BEFORE TAKING OUT YOUR CALCULATOR TO START PARTS B AND C.

PART B: WRITTEN QUESTIONS: Each question is worth 3 marks. If your answer is correct, you will receive full marks whether work is shown or not. If your answer is incorrect, partial marks will be given for correct work shown.

1. Two standard six-sided dice are tossed. One die is red and the other is blue. What is the probability that the number appearing on the red die is equal to or greater than the number appearing on the blue die?

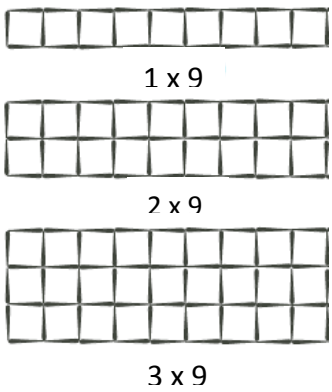
2. A bicycle at Bob's Bikes costs $300. The regular price of the same bicycle at Cam's Cycles is 20% more than it is at Bob's Bikes. The bicycle is on sale at Cam's Cycles for 30% off the regular price. What is the sale price of the bicycle at Cam's Cycles?

3. In the diagram, AB = 5, BC = 3 and BD = 10. What is the area of the shaded triangle?



4. A set of seven different positive integers has a mean (average) of 20 and a median of 30. What is the greatest possible integer in the set?

5. Toothpicks are used to make rectangular grids, as shown. Note that a total of 28 toothpicks are used in the 1 x 9 grid. How many toothpicks are used in a 47 x 9 grid?



6. If snow continues to fall at a rate of 2 mm every 10 minutes, then how many hours will it take for 1 m of snow to fall?

7. Three babies are weighed <u>two at a time</u> in all possible ways. The weights recorded are 10 kg, 14kg, and 15 kg. How much does the heaviest baby weigh?

8. In a magic square, all rows, columns, and diagonals have the same sum. The magic square shown uses each of the numbers from -6 to +2. What is the value of Y?

+1		Y
-4		
-3		-5

9. The product of three *different* positive integers is 135. What is the maximum possible sum of these three integers?

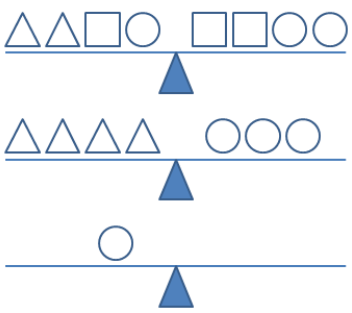
10. Amanda ate $\frac{2}{5}$ of a pie and Betty ate $\frac{3}{8}$ of the same pie. The next day, Cassie ate $\frac{1}{4}$ of the amount of pie that was left. What fraction of the original pie was NOT eaten?

PART C:

1. The ratio of boys to girls in a club was 11:15. Then, 4 boys left the club and now the new ratio of boys to girls is 5:7. How many boys are now in the club?

2. A 59 cm rod is built from 5 cm rods and 2 cm rods. All of the 5 cm rods must come first, and are followed by the 2 cm rods. For example, the rod could be made from seven 5 cm rods followed by twelve 2 cm rods. How many ways are there to build the 59 cm rod?

3. 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)



4. The numbers in the following sequence continue in the same pattern until the last number shown.
   17, 19, 21, 23, 25, 27, 29, 31, … , 275

   a) How many numbers are in the sequence?

   b) What would be the sum of all the numbers in the sequence?

5. In the diagram, ABCD is a square with area 225 cm^2. If PQCD is a rhombus with area of 180 cm^2, what is the area of the shaded region?