



Rules and Regulations L2 Competition #1



Releasing the Genius®

(Please read these rules and regulations carefully)

1. Please fill in your FULL name, grade, campus and student ID clearly on the answer sheet, and on the top of this page.
2. Do not open the question booklet until you are told to do so. You may only use a pencil when answering the questions.
3. No calculators or unauthorised electronic devices (including mobile phones) are allowed during the contest.
4. Strict silence must be observed at all times in the examination hall and please be reminded that you MAY NOT leave your seat without permission.
5. If you have any request or enquiry, please raise your hand and wait for an invigilator.
6. Only one candidate is allowed to leave the hall at a time. You are required to return to the hall within 10 minutes or else you will automatically be disqualified from the contest.
7. Each question in the contest has been verified by experienced trainers, thus no further explanation will be given.
8. The time allowed for the paper is 45 minutes. You must stop writing when you are told to do so.
9. You MUST fill in your answer in the answer sheet provided as you walked into the contest room. You will not be awarded marks for any answer written in the question booklet.

Scoring System

1. The correct answers to problems 1 to 10 will be awarded 1 point each. The correct answers to problems 11 to 14 will be awarded 2 points each. The total number of marks is 18 points. You will not be penalized for each incorrect answer.
2. The organizer reserves the right to call for a re-sit in the event of malpractice and to differentiate between those outstanding students.
3. Contestants who are disqualified from the contest will not be awarded any certificates and will be forfeited any right to re-sit this year.

Questions 1-10 are worth 1 mark each

1. Billy and Jilly are running around a 1km racetrack. If Billy runs at a speed of 0.25km/hr, and Jilly runs at a speed of 0.5km/hr, when is the next time they will meet during the race?
a) 4 hours b) 2 hours c) 30 minutes d) 45 minutes
2. Joanne owns a farm and wants to cover the most area possible with 150m of fence. What is the largest area possible?
a) $1,406.25\text{m}^2$ b) $\frac{5,625\text{m}^2}{\pi}$ c) $75\pi\text{m}^2$ d) 75m^2
3. Joanne has another farm that borders a river. If Joanne has 300m of fence, and does not need a fence along the river, what shape will cover the largest area?
a) Right-angle triangle b) equilateral triangle c) square d) Semi-circle
4. The numbers in the weekly lottery range from 1, 2, 3, ..., 48, 49. The organizer will pick 6 different numbers. Andy's parents bought a ticket and the numbers on the ticket are 2, 17, 26, 29, and 43. On that Saturday, the organizer picked 17, 26, 30, 2, and 29, the probability that the last number is 30 is:
a) $1/44$ b) $1/45$ c) 5% d) 7.5%
5. 3 cups of water combined with 2 cups of sugar can make enough kool-aide for 10 people. If Gita has 51 cups of water, how many cups of sugar does she need?
a) 153 cups b) 101 cups c) 34 cups d) 76.5 cups
6. Cards are shared among Amy, Betty, and Chris so that during every distribution Amy gets 1 card, Betty gets 2 cards, and Chris gets 3 cards in this order. Who is the last card (the 54th card) is given to?
a) Amy b) Betty c) Chris
7. We want to make a 40% sugar solution. If we have 70 grams of water, how many grams of sugar do we need?
a) 21 b) 28 c) 40 d) 50
8. Nathan is driving his car down the road from his house to his favourite restaurant. Nathan's house to the restaurant is 60km, and the drive has three different speed limits: the first 20km has a speed limit of 20km/hr, the second is 20km with a speed limit of 40km/hr, and the third is 20km with a speed limit of 20km/hr. What is Nathan's average speed?
a) 26km/hr b) 24km/hr c) 28km/hr d) 30km/hr

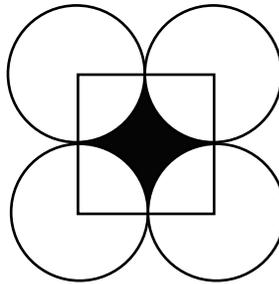


9. Suppose that $\triangle_{a,b,c}$ means $a+b-c$. For example, $\triangle_{5,4,6}$ is $5+4-6=3$.

Then the sum $\triangle_{3,4,1} + \triangle_{5,6,2}$ is?

- a) -2 b) -1 c) 0 d) 1
10. Five test scores have a mean (average score) of 90, a median (middle score) of 91 and a mode (most frequent score) of 94. The sum of the two lowest test scores is:
- a) 170 b) 171 c) 176 d) 177

11. Four circles of radius 3 are arranged as shown. Their centers are the vertices of a square. The area of the shaded region is closest to:
- a) 7.7 b) 12.1 c) 17.2 d) 18



12. One half of the water is poured out of a full container. Then one third of the remainder is poured out. Continue the process: one fourth of the remainder for the third pouring, one fifth of the remainder for the fourth pouring, etc. After how many pourings does exactly one tenth of the original water remain?
- a) 6 b) 7 c) 8 d) 9
13. Students in grade 5 complete a weekly 80 question drill when the class average reaches 70/80. A teacher has students call out their drill marks, and keeps track of these by counting a running total of positive >70 and negative <70 scores. So a mark of 78 would be +8. If that was followed by a mark of 58 that would be -12, giving a running score of -4. If the running score for the class ended at -5, then the average for a class of 30 students on that drill would be:
- a) $\frac{2,095}{3,000}$ b) $\frac{65}{80}\%$ c) 81% d) 80%
14. Max spent \$80 to purchase 2 yards of garden soil. He sold 1 yard of this soil for \$45, and used this money to purchase 1.125 yards of this same soil. He then sold all the soil at a price of \$48 a yard. What was his profit?
- a) \$22 b) \$20 c) 18 d) \$25