

Instructions:

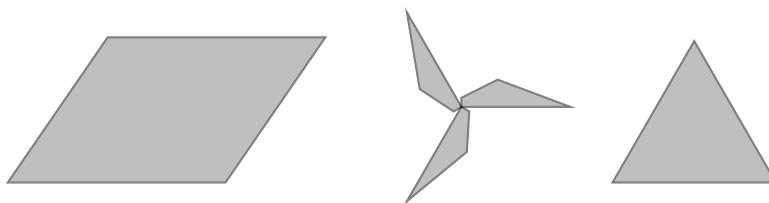
1. Do not open this booklet until you are told by your teacher to begin.
2. Materials: pencil, paper — no other materials. NO calculators!
3. You will have exactly **40 minutes** to work on the contest.
4. This form has 9 questions in Part A, 9 questions in Part B, and 5 questions in Part C.
5. Parts A and B of this contest are multiple choice. Each of the questions in these parts is followed by five possible answers marked A, B, C, D, and E. Only one of these is correct. After making your choice, fill in the appropriate circle on the response form.
6. The correct answer to each question in Part C is an integer from 0 to 99, inclusive. Fill in your number using the appropriate circles on the response form. A one-digit answer (such as "4") must be coded with a leading zero ("04").
7. Scoring:
 - Each correct answer is worth:
 - 4 points in Part A,
 - 5 points in Part B,
 - 6 points in Part C.
 - Each unanswered question is worth 2 points.
 - Incorrect answers are worth 0 points.

Part A (4 points each)

1. Which of the following is the largest?

- (A) $2 + 0 + 2 + 6$
- (B) $2 \times (0 + 2) \times 6$
- (C) $(2 + 0^2) \times 6$
- (D) $2 \times 0 \times 26$
- (E) 2^{0+1}

2. What is the total number of lines of symmetry among the 3 objects below?

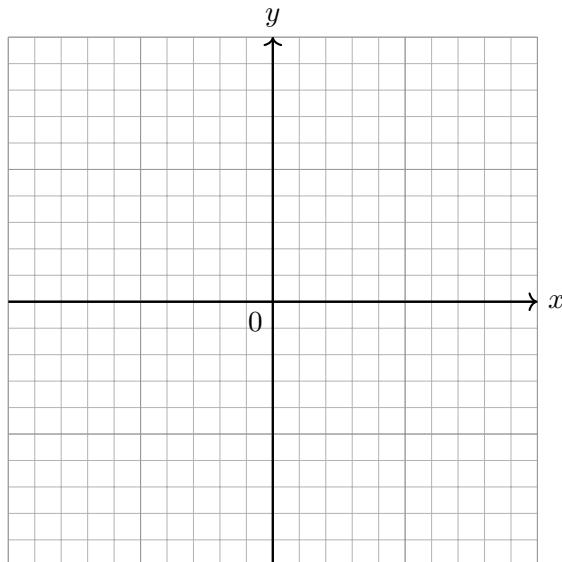


- (A) 3
- (B) 4
- (C) 5
- (D) 6
- (E) 7

3. Which of the following is the closest to -4 ?

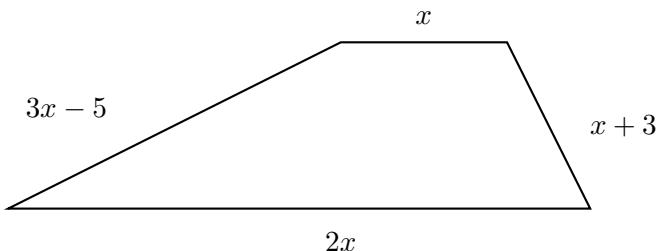
- (A) $21 \div (-3)$
- (B) $(-4) \times (-1)$
- (C) $-(-7 - 3)$
- (D) $5 - 1$
- (E) $15 - 21$

4. Renert Rabbit is at $(-1, 3)$ on the Cartesian plane. It hops 3 units up, 2 units right, 6 units down, then 4 units right. Where does Renert Rabbit end up?



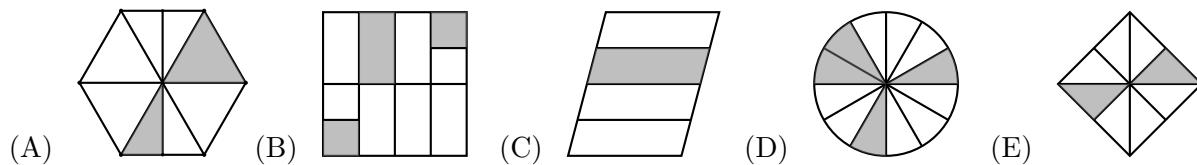
- (A) $(8, 9)$
- (B) $(0, 5)$
- (C) $(5, 0)$
- (D) $(3, 0)$
- (E) $(0, 3)$

5. The following quadrilateral has a perimeter of 54 units. What is the value of x ?



- (A) 8 (B) $\frac{27}{2}$ (C) $\frac{52}{7}$ (D) $\frac{54}{7}$ (E) 6

6. In which of the following is the shaded area **not** equal to $\frac{1}{4}$ of the shape?



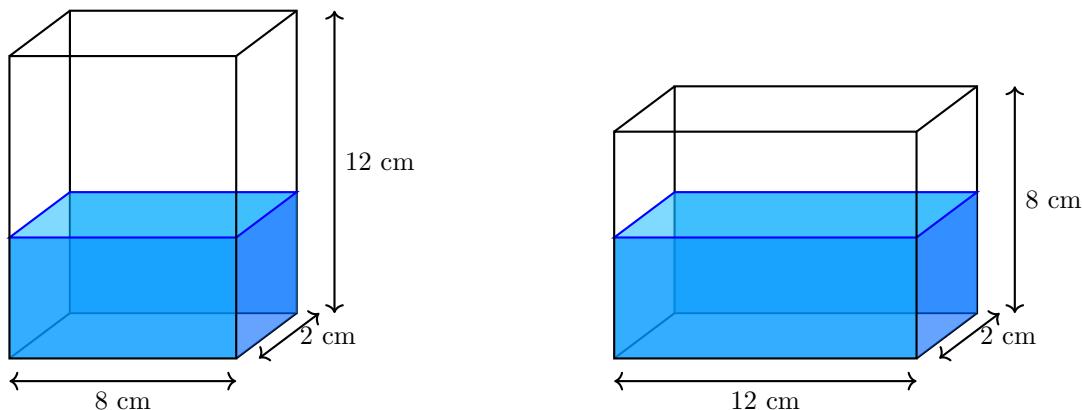
7. What is the value of $\left(\frac{2}{3} + \frac{1}{6}\right) \div \left(\frac{25}{9}\right)$?

- (A) $\frac{125}{54}$ (B) $\frac{9}{50}$ (C) $\frac{3}{25}$ (D) $\frac{3}{10}$ (E) $\frac{25}{27}$

8. If $720 = 2^A \times B$ where B is odd, then $A + B$ is

- (A) 45 (B) 49 (C) 61 (D) 361 (E) 362

9. In a rectangular prism 8 cm long, 2 cm wide, and 12 cm tall, water is filled to a depth of 3 cm. When the tank is turned on its side so that the height is 8 cm, what is the new depth of the water in cm?



- (A) 1.5 (B) 2 (C) 2.5 (D) 3.5 (E) 6

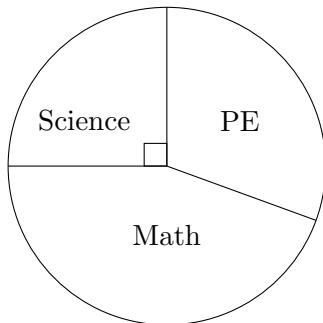
Part B (5 points each)

10. What is the last digit of 3^{2026} ?
- (A) 1 (B) 3 (C) 5 (D) 7 (E) 9
11. The ratio of red marbles to blue marbles in a bag is 2 : 3. The ratio of blue marbles to yellow marbles in the bag is 2 : 3. The ratio of yellow marbles to green marbles in the bag is 2 : 3. What is the ratio of red marbles to green marbles in the bag?
- (A) 8 : 27 (B) 2 : 3 (C) 2 : 27 (D) 1 : 9 (E) 4 : 9
12. If two-thirds of the sum of a number and three is 15, then what is 21 less than double that number?
- (A) 15 (B) 18 (C) 21 (D) 24 (E) 27
13. Sunny started from 0 and began adding every second odd number starting from 1. She obtained sums of 1, 6, 15, 28, and 45. If she continues this pattern, which of the following numbers will she **not** obtain?
- (A) 91 (B) 190 (C) 276 (D) 374 (E) 435
14. Loni spent 30% of her money on books. She then spent 60% of the remainder on candy. If she has \$112 left, then how much money did she spend on books?
- (A) \$112 (B) \$120 (C) \$336 (D) \$400 (E) \$1120
15. Hugo starts with the number 26. In each step, he does one of the following:
- adds 4 to his number,
 - divides the number by 2 (if it is even), or
 - divides the number by 3 (if it is divisible by 3).

What is the *minimum* number of steps he needs to reach 1?

- (A) 5 (B) 6 (C) 7 (D) 8 (E) 9

16. Students at a school were surveyed on their favourite subject (out of Math, PE, and Science). The results are displayed below in the pie chart. There were 1.5 times as many students who chose Math as students who chose PE. If the difference between the number of students who chose Science and PE was 36, how many students chose Math?



17. How many squares can be made where the vertices come from points in a 4×4 grid?

A 5x5 grid of black dots arranged in five rows and five columns.

18. Among Acacia (A), Brady (B), and Connor (C), one always tells the truth, one always lies, and one alternates between telling truths on one day and telling lies on the next. On three days in a row, they make the following statements:

1st day

- A:** Yesterday was not Friday.
 - B:** Yesterday was not Friday.
 - C:** Today is Monday.

2nd day

- A:** Today is Tuesday.
 - B:** Yesterday was not Wednesday.
 - C:** Yesterday was Wednesday.

3rd day

- A:** Tomorrow is Friday.
 - B:** Tomorrow is not Thursday.
 - C:** Tomorrow is not Friday.

Which day of the week was the first day?

- (A) Monday (B) Tuesday (C) Wednesday (D) Thursday (E) Friday

Part C (6 points each)

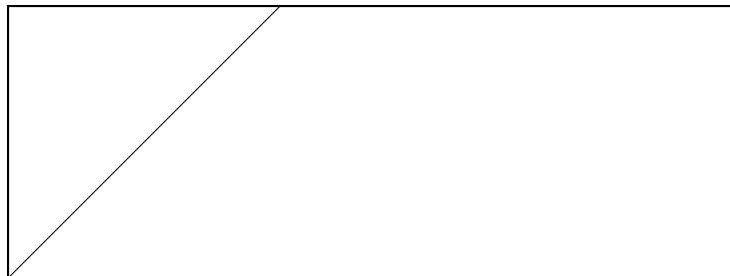
19. Consider the following multiplication statement, where A , B , and C are digits.

$$\begin{array}{r}
 & 2 & A & 3 & B \\
 \times & & & C & 6 \\
 \hline
 \equiv & 1 & 8 & 4 & 9 & 0 & 8
 \end{array}$$

What is $A + B + C$?

20. Renert Rabbit has a bag of apples: 10 of them are yellow, 9 are green, and 6 are red. He reaches in the bag and pulls two apples out at random. The probability that they will be the same colour can be written as a fraction p/q in simplest form. What is p ?

21. A rectangle is split into two pieces using the angle bisector of one of the corners. One of the pieces is 26 times the size of the other. If the ratio of the lengths of the shorter side to the longer side of the rectangle is written as a fraction p/q in simplest form, then what is $p + q$?



22. $\lfloor y \rfloor$ is the largest integer less than or equal to y . For example, $\lfloor 3.8 \rfloor = 3$ and $\lfloor 5 \rfloor = 5$. How many integers x satisfy $\lfloor \sqrt{x} \rfloor = 8$?

23. A Fibonacci-like sequence begins with two different, positive integers in increasing order. Each term after is the sum of the previous two terms. An example is 1, 4, 5, 9, 14, How many Fibonacci-like sequences are there where one of the terms after the first two terms is 50?