SASMO 2025 MOCK TESTS
Grade: 6
Time allowed: 90 minutes
TEST 2

INSTRUCTIONS. Please read all the instructions below carefully.

a) **DO NOT OPEN** the contest booklet until the Proctor has given permission to start.

b) **TIME: 1 hour 30 minutes.**

c) There are 25 questions.

- **Section A:** Questions 1 to 15 score 2 points each, no points are deducted for an unanswered question and 1 point is deducted for the wrong answer.
- **Section B:** Questions 16 to 25 score 4 points each, no points are deducted for an unanswered or wrong answer.

d) Shade your answers neatly using a **2B lead pencil** in the Answer Entry Sheet.

e) **PROCTORING:** No one may help any student in any way during the contest.

f) No electronic devices capable of storing and displaying visual information are allowed during the course of the exam.

g) Strictly **No Calculators** are allowed into the exam.

h) All students must fill and shade their **Name, School and Index Number** in the Answer Entry Sheet and Contest booklet.

i) **MINIMUM TIME:** Students must stay in the exam hall for at least 1 hour.

j) **No exam papers and written notes can be taken out by any contestant.**

GOOD LUCK!

LIVEWORKSHEETS

A SECTION A (CORRECT ANSWER = 2 MARKS; NO ANSWER = 0; INCORRECT ANSWER = MINUS 1 MARKS)

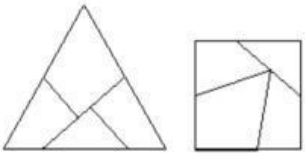
Question 1. Given an operator $\square$ acting on two numbers such that

$$a \square b = a + \frac{b}{2} - 1$$

Which of the following numbers is the largest?

(A) $2 \square 3$. (B) $3 \square 1$. (C) $1 \square 2$. (D) $4 \square 1$. (E) $1 \square 5$.

Question 2. The diagram shows how an equilateral triangle can be cut into four pieces and rearranged to form a square. This solution of the Haberdasher's Puzzle is discovered by Henry Dudeney (1857 – 1930).



If the length of the square is 16 cm and the height of the triangle is 21 cm, find the length of the triangle, correct to the nearest whole number.

(A) 22 cm. (B) 23 cm. (C) 24 cm. (D) 25 cm. (E) 26 cm.

Question 3. An operator $\star$ acts on two numbers to give the following outcomes:

$$3 \star 2 = 65$$

$$5 \star 3 = 158$$

$$6 \star 1 = 67$$

$$9 \star 4 = 3613$$

What is $7 \star 5$ equal to?

(A) 1235. (B) 1335. (C) 3512.
(D) 3513. (E) None of the above.

Question 4. Five different integers in a list have a median of 10 and a range of 7. What is the smallest possible integer in the list?

(A) 4. (B) 5. (C) 6. (D) 7. (E) 8.

Question 5. Find the missing term in the following sequence: 2, 5, 10, 17, _, 37.

(A) 23. (B) 24. (C) 26. (D) 27. (E) 29.

Question 6. A whole number multiplied by itself will give a special type of numbers called perfect squares. Examples of perfect squares are $3 \times 3 = 9$ and $4 \times 4 = 16$. A perfect square year is a year which is a perfect square. For example, this year, 2025, is a perfect square year. What year will be the next perfect square year after 2025?

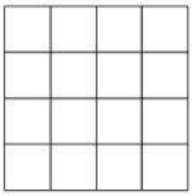
(A) 1936. (B) 2056. (C) 2116.
(D) 2026. (E) None of the above.

Question 7. If the five-digit number $2345N$ is divisible by 6, find N.

(A) 0. (B) 2. (C) 4. (D) 6. (E) 8.

LIVEWORKSHEETS

Question 8. How many rectangles are there in a 4×4 square grid?
Note: A square is also a rectangle.



(A) 70. (B) 90. (C) 100.
(D) 110. (E) None of the above.

Question 9. The height of a man is 150 cm, correct to the nearest centimetre. What is the lowest possible height of the man?

(A) 149 cm. (B) 149.4 cm. (C) 149.5 cm.
(D) 149.9 cm. (E) None of the above.

Question 10. Doomsday is a term that refers to the final day of February. That is, Doomsday is February 29 in a leap year and it is February 28 in a non-leap year. If the Doomsday of 2024 was Thursday, what day of the week was the Doomsday of 2023?

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

Question 11. A palindromic number is a whole number that reads the same forward and backward. For example, 1221 is a palindromic number. How many 4-digit palindromic numbers are there?

(A) 19. (B) 90. (C) 100.
(D) 900. (E) None of the above.

Question 12. A bag contains some sweets that can be divided equally among 3, 4, 6 or 7 children with no remainder. What is the smallest possible number of sweets in the bag?

(A) 84. (B) 168. (C) 252.
(D) 504. (E) None of the above.

Question 13. Given that $x \times y \times z = 2025$, and x, y and z are positive integers such that $x < y < z$, how many possible triples (x, y, z) are there?

(A) 1. (B) 12. (C) 20.
(D) 27. (E) None of the above.

Question 14. Daniel wants to cut rectangular cards of length 3 cm by 2 cm from a rectangular sheet 50 cm by 19 cm. Find the biggest number of cards that can be cut from the sheet.

(A) 144. (B) 150. (C) 158.
(D) 159. (E) None of the above.

Question 15. A train travels at a speed of 90 km/h. The length of the train is 300 m. Find the time taken by the train to pass completely through a 4.5 km tunnel.

(A) 3 min. (B) 3 min 2 s. (C) 3 min 12 s.
(D) 3 min 20 s. (E) None of the above.

B SECTION B: CORRECT ANSWER = 4 MARKS; INCORRECT OR NO ANSWER = 0

Question 16. The product of two numbers is 1000. Neither of the two numbers has 10 as a factor. Find the difference of these two numbers.

LIVEWORKSHEETS

Question 17. Given that 4! means $4 \times 3 \times 2 \times 1 = 24$, find the number of consecutive zeros at the end of 14!.

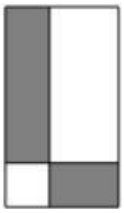
Question 18. Jerry drives 2025 km during a trip. He rotates the tyres (four tyres on the car and one spare tyre) so that each tyre has been used for the same distance at the end of the trip. How many kilometres are covered by each tyre?

Question 19. Jane is at a road junction with four possible roads to her friend's house, but she did not know which road to take. So she asks some passersby for direction.

- First Passerby: Your friend's house is not on Road 1.
- Second Passerby: I did not want to live near your friend, so I moved from Road 2 to Road 4.
- Third Passerby: I have taken Road 2 to the beach before, but I have not passed by any house.
- Fourth Passerby: Your friend stays on Road 3.

If only one of the passersby is telling the truth, on which road does Jane's friend live?

Question 20. The diagram shows a rectangle being divided into 3 smaller rectangles and a square. If the perimeter of the unshaded rectangle is 48 cm and the area of the square is 36 cm^2, find the total area of the shaded rectangles.



Question 21. A cuboid is made from 2025 one-centimetre cubes. It is given that all sides of this cuboid, in centimetre, are composites. How many faces of this cuboid are squares?

Question 22. A number gives a remainder of 3 when divided by 10. Another number gives a remainder of 4 when divided by 10. The sum of these two numbers is multiplied by 6 to give the third number. What is the remainder when this third number is divided by 10?

Question 23. Find the 2025^{th} term of the following sequence: 1, 2, 2, 3, 3, 3, 4, 4, 4, 4, ...

Question 24. In a school hall, $\frac{8}{13}$ of the chairs are arranged in rows of 7, and $\frac{5}{13}$ of the chairs are arranged in rows of 11. The rest of the chairs are stacked up. If there are less than 2000 chairs in the hall, find the total number of chairs in the hall.

Question 25. Find the remainder when 3^{2025} is divided by 4.

THE END

LIVEWORKSHEETS