HEAT ROUND / VÒNG CHUNG KẾT QUỐC GIA

ĐỀ SỐ 1: Đề thi Vòng Chung kết quốc gia năm học 2020 – 2021

Q1. According to the pattern shown below, what is the number in the blank?

38 、35 、30 、23 、14 、__

Q2. There are 27 transparent boxes, as shown in figure 1. Each layer contains 9 boxes as figure 2 showns. Some black marbles are inserted into the boxes and view from different directions, the images are shown in the diagram below. Find the number of black marbles inserted in these 27 boxes.

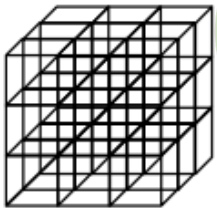


Figure 1

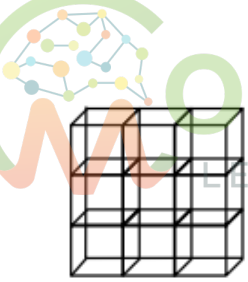
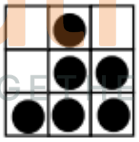
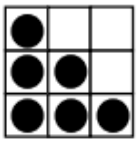


Figure 2

Top view



Front view



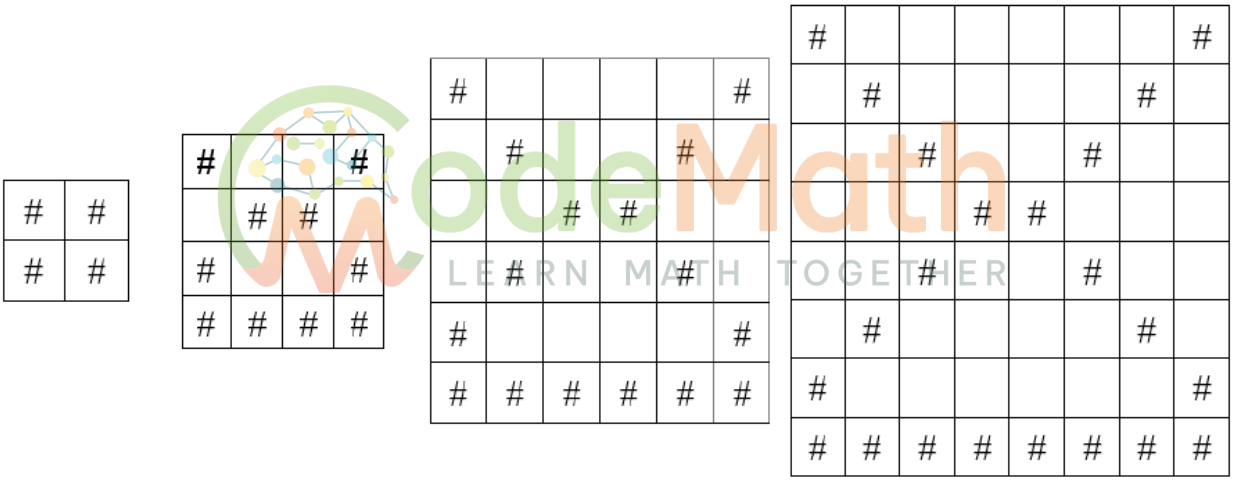
From the right

Q3. Today is Wednesday. Which day of the week was 25 days ago?

Q4. What is the value of the number to represent “?” in the following table?

1	3	5	20
2	4	7	42
3	5	9	72
4	6	11	?

Q5. According to the pattern shown below, how many # are there in the 7th Group?



Q6. Find the value of 217 + 642 + 513 + 727 + 138 + 633.

Q7. Find the value of the following operation:

128 ÷ 2 + 128 ÷ 4 + 128 ÷ 8 + 128 ÷ 16 – 128 ÷ 32 – 128 ÷ 64 – 128 ÷ 128.

Q8. Find the value of $27 \times 6 + 18 \times 11 - 9 \times 13 - 3 \times 6$.

Q9. Find the value of $9 + 15 + 21 + 27 + 33 + 39 + 45 + 51 + 57$.

Q10. Find the value of $2 \times 4 \times 8 \times 15 \times 25 \times 35$.

Q11. Define $a \oplus b = (a - 3) \times (a + b) \times (b - 3)$. Find the value of $(8 \oplus 6)$.

Q12. Find the smallest 3-digit odd number that can both be divisible by 7 and 11.

Q13. Determine the result below is an odd or an even number.

$111 \times (213 + 151) + 222 \times (132 + 157) - 333 \times (12 + 1) + 444 \times (112 + 334)$

Q14. Jacky has 24 eggs and Emma has 16 eggs. How many egg(s) does Emma have to give Jacky to make the number of eggs of Jacky's is 3 times of that of Emma's?

Q15. The product of positive integers A and B is 693. The difference between A and B is 12. Given A is smaller than B, find the value of A.

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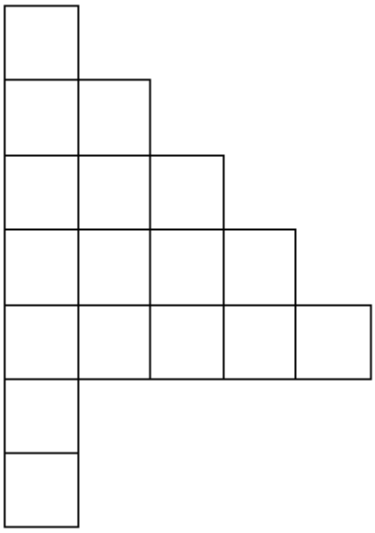
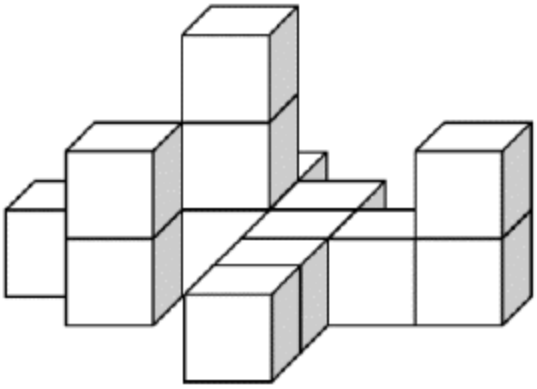
Q16. How many square(s) is / are there in the figure below?



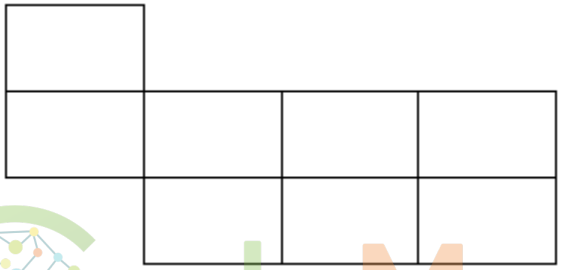
Q17. A pyramid has 200 vertices, how many edge(s) does this pyramid have?

Q18. 9 small squares whose perimeters are 36 each form a larger square. What is the perimeter of the larger square?

Q19. We place some identical cubes on top of each other. At least how many square(s) can be seen if observing the figure below from the right-hand side?



Q20. How many rectangle(s) is / are there in the figure below?



Q21. After Peter takes 20 apples and 17 apples from Bobby and Charlie respectively, they will all have an equal number of apples. How many apple(s) did Bobby have more than Peter originally?

Q22. Counting from 1 to 400, how many numbers are there that have exactly one digit “0” and one digit “3”?

Q23. Numbers are drawn from the 30 integers 1 to 30. At least how many number(s) is / are drawn at random to ensure that there are two numbers whose sum is 38?

Q24. How many 4-digit number(s) less than 3333 can be formed by using 0, 1, 2, 3 and 4? (Each number can only be used once).

Q25. A drink shop has 3 types of drinks and 7 types of toppings. How many way(s) can Peter buy 1 drink with 2 toppings? (Type of toppings cannot be repeated).