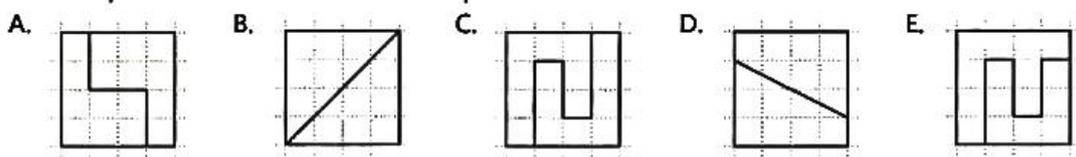


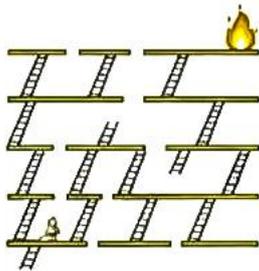
## 2024 SMKC P3&P4

### Problems 3 points each

1. Which square is cut into 2 different shapes?

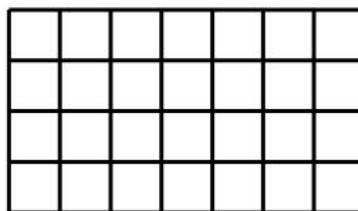


2. What is the smallest number of ladders the firefighter must use to reach the fire without between platforms?



- A. 4      B. 5      C. 6      D. 7      E. 8

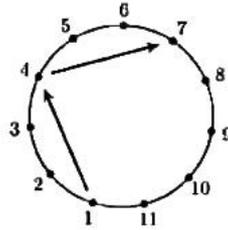
3. The following image consists of 28 white squares:



Alex colors 2 rows and 1 column of squares (rows are squares from left to right, columns are squares from top to bottom). How many white squares are left?

- A. 8      B. 10      C. 12      D. 14      E. 17

4. Soccer players numbered 1 to 11 stand in a circle. Each player kicks the ball to the third player on their left. Player 1 starts. This kicking pattern continues until a player has the ball for the second time. What is the number of the player who kicked the ball last?



- A. 7    B. 8    C. 9    D. 10    E. 11

5. Justin wrote three consecutive 4-digit numbers in a row. His sister erased some digits. What are the missing digits (from left to right)? (For example, 213, 214, and 215 are three consecutive 3-digit numbers.)

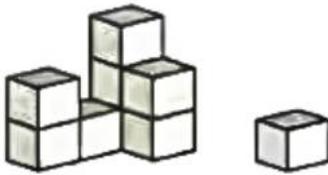
□□□7, □898, 48□□

- A. 389, 3, 99    B. 489, 3, 96    C. 489, 4, 98    D. 489, 4, 99    E. 488, 4, 99

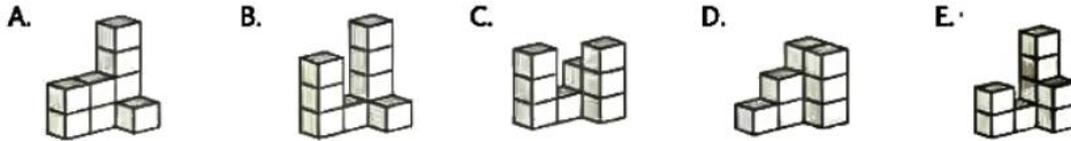
6. Lucia pays 7 dollars for 3 items. The cost of each item is different and is a whole number. How much does the most expensive item cost?

- A. 2 dollars    B. 3 dollars    C. 4 dollars    D. 5 dollars    E. 6 dollars

7. A cat knocks 1 block off Felix's construction.



What could this construction have looked like before the block was knocked off?



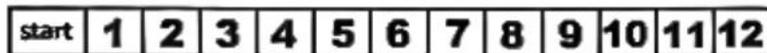
8. Alex has a Kangaroo poster on the kitchen wall. The tiles on the whole wall form a regular pattern. How many gray tiles are there behind the poster?



- A. 15    B. 21    C. 25    D. 30    E. 35

**Problems 4 points each**

9. Carolyn and Tom toss a coin which has a purple side and a green side.



If the child gets the purple side, that child advances 3 steps. If the child gets the green side, that child goes back 1 step or stays at the starting position. Both started at the space marked with 'start' and each tossed the coin 4 times. Carolyn advanced to number 4 and Tom advanced to number 8. How many times in total did they get the green side of the coin?

- A. 1    B. 2    C. 3    D. 4    E. 5

10. There are five different kinds of fruit in a bowl:



Ann likes .

Ben likes     .

Cam likes   .

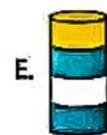
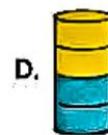
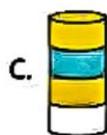
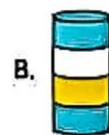
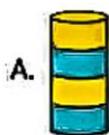
Dan likes  .

Eli likes  .

Everyone gets a fruit they like. Everyone gets a different kind of fruit. What does Ben get?

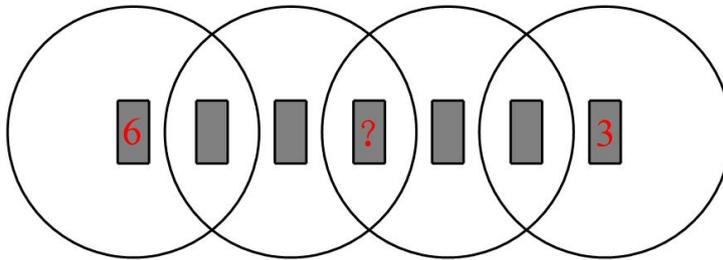


11. Ada built a tower of 8 discs, as in the picture. Ada removes the second disc from the bottom of this tower. Then she removes the third disc from the bottom of the new tower. Then she removes the fourth disc from the bottom of the new tower. Then she removes the fifth disc from the bottom of the new tower. Which tower does Ada end up with?



12. Peter the Penguin goes fishing every day and brings back 9 fish for his 2 chicks. Each day, he gives 5 fish to the first chick he sees and 4 fish to the second chick. The chicks eat all the fish they get. Over the last few days, 1 chick ate 26 fish. How many fish did the other chick eat during those days?  
A. 19      B. 22      C. 25      D. 28      E. 31

13. 7 cards, numbered 1 to 7, are placed in 4 overlapping rings. The sum of the numbers in each ring is 10. Which number is under the question mark?



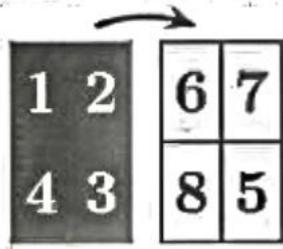
- A. 1      B. 2      C. 4      D. 5      E. 7

14. Lucas wants to make a caterpillar that has a head, a tail, and 1, 2, or 3 puzzle pieces in between. How many different caterpillars can Lucas make without flipping the pieces over?



- A. 3      B. 4      C. 5      D. 6      E. 7

15. John writes the numbers 1 to 4 on a sheet of paper. Then he flips the sheet and writes the numbers 5 to 8, as shown.



After that, he cuts the sheet into 4 rectangular cards and puts them in a row.



What is the sum of the numbers represented by the question marks?

- A. 3      B. 4      C. 5      D. 6      E. 7

16. A floor is covered with 2 kinds of tiles:  and .

The size of the rectangles is  $23\text{cm} \times 11\text{cm}$ . The picture shows a part of the floor. How long is one side of the square tiles?



- A. 3cm      B. 4cm      C. 5cm      D. 6cm      E. 7cm

### Problems 5 points each

17. A student has 3 cards with numbers on them. Their sum is 782. Unfortunately, a worm ate part of each card. What is the sum of the 3 missing digits?



- A. 8      B. 9      C. 10      D. 11      E. 12

18. Lucy weighs some blocks.



How much do the 3 different blocks weigh together?

- A. 270g    B. 280g    C. 290g    D. 300g    E. 310g

19. There are 60 students on a trip. When they line up, the colors of their reflective vests follow the pattern: yellow, green, yellow, green...  
The colors of their backpacks follow a different pattern: red, brown, orange, red, brown, orange...

How many students with a yellow reflective vest also have an orange backpack?

- A. 3    B. 4    C. 6    D. 8    E. 10

20. In the following calculations, the same digits are hidden under the same figures. Different digits are hidden under different figures.

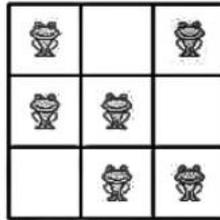
$$\triangle + \triangle = \square \text{ } \circ$$

$$\circ + \triangle = \square \square$$

What is the value of  $\triangle \times \circ \times \square$  ?

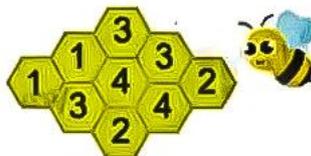
- A. 0    B. 15    C. 18    D. 28    E. 30

21. There are exactly 2 frogs in each row and each column. The frogs decide that 2 of them will jump to a neighboring empty cell at the same time. Neighboring cells have a side in common. Afterwards, there still will be exactly 2 frogs in each row and in each column. In how many ways can the frogs do this?



- A. 1      B. 2      C. 3      D. 4      E. 5

22. The figure below shows a honeycomb with 9 cells. There is honey in some cells. The number in each cell shows how many neighboring cells contain honey. Neighboring cells have a side in common. How many cells contain honey?



- A. 4      B. 5      C. 6      D. 7      E. 8

23. Three girls, one after another, take some cookies from the tray shown.



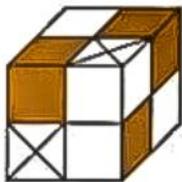
One of the girls takes all the heart-shaped cookies available on the tray. Another girl takes all the white cookies available on the tray. Another girl takes all the large cookies available on the tray. However, they do not necessarily take the cookies in this order. One girl takes 3 cookies, one takes 6 cookies, and one takes 7 cookies. Which of the following sets of cookies does one of these girls take?

- A. ○○♥      B. ♥○○○○○○♥      C. ○○○○○♥
- D. ♥♥♥♥♥♥      E. ○○○

24. There are 2 types of blocks:



A small cube can be made using 4 white blocks or using 1 white and 1 red block. The large cube shown in the picture is made Of small cubes. What is the smallest number of white blocks needed to make the large cube?



- A. 8      B. 11      C. 13      D. 14      E. 23

# ANSWER

1-5: ECCCCD  
6-10: CEBCA  
11-15: BDABB  
16-20: DDAED  
21-24: DCED

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