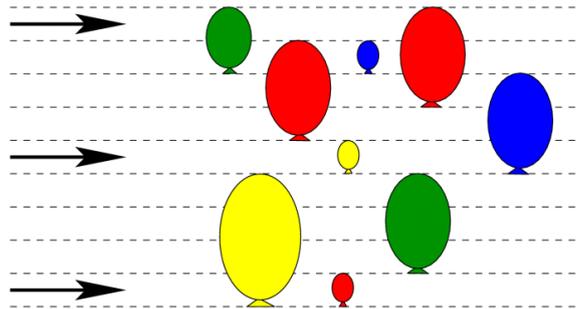


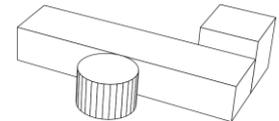
3 point problems

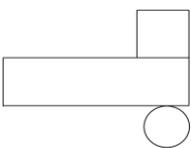
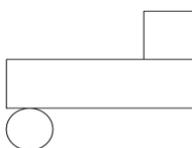
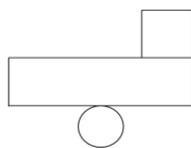
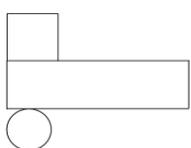
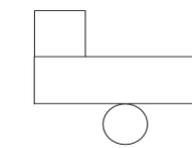
1. The picture shows 3 flying arrows and 9 fixed balloons. When an arrow hits a balloon, it bursts, and the arrow flies further in the same direction. How many balloons will **not** burst?

- (A) 2      (B) 3      (C) 4      (D) 5      (E) 6



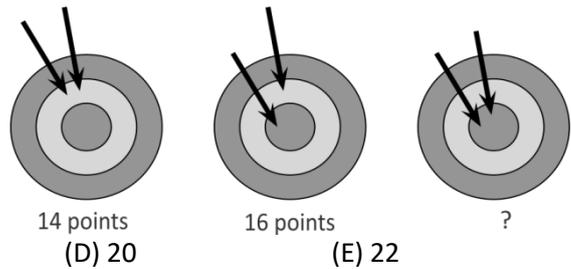
2. There are three objects on the table. What does Peter see if he looks at the table from above?



- (A)       (B)       (C)       (D)       (E) 

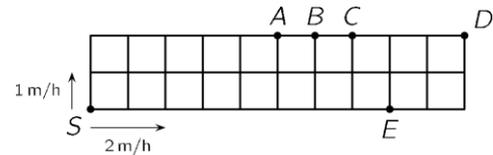
3. Diana threw two arrows at a target and scored 14 points. On her second turn she threw two arrows and scored 16 points. How many points did she score on her third turn?

- (A) 17      (B) 18      (C) 19      (D) 20      (E) 22



4. A sidewalk is divided into identical squares. Two snails, a fast and a slow, start at the same time from vertex S, in different directions, with speeds of 2 meters per hour and 1 meter per hour, respectively. They move on the perimeter of the sidewalk until they meet for the first time. At what point will this occur?

- (A) A      (B) B      (C) C      (D) D      (E) E



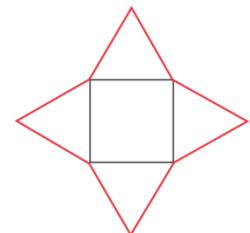
5. Alice subtracted two 2-digit numbers. Then she covered two digits, as shown. What is the sum of the two digits that were covered?

- (A) 8      (B) 9      (C) 12      (D) 13      (E) 15

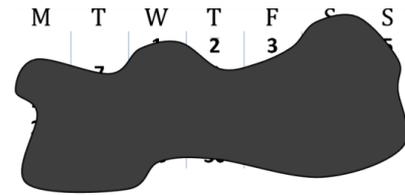


6. A star is made of four equilateral triangles and a square. The perimeter of the square is 36 cm. What is the perimeter of the star, in centimeters, highlighted in red?

- (A) 72      (B) 90      (C) 104      (D) 120      (E) 144



# KSF 2018 – Level B



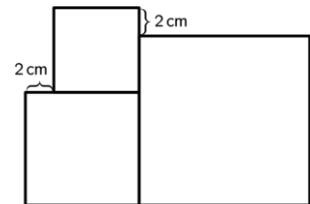
7. The picture shows the calendar of a certain month. But someone spilled ink on it, covering most of the dates. What day is the 25<sup>th</sup> of that month?

- (A) Monday            (B) Wednesday            (C) Thursday            (D) Saturday            (E) Sunday

8. At most, how many times do we have to roll a regular die to get one result repeated?

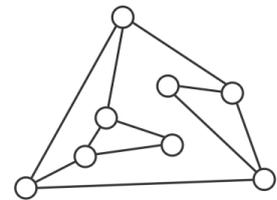
- (A) 5            (B) 6            (C) 7            (D) 8            (E) 9

9. There are 3 squares in the figure. The side length of the smallest square is 6 cm. What is the side length of the biggest square?



- (A) 8 cm            (B) 10 cm            (C) 12 cm            (D) 14 cm            (E) 16 cm

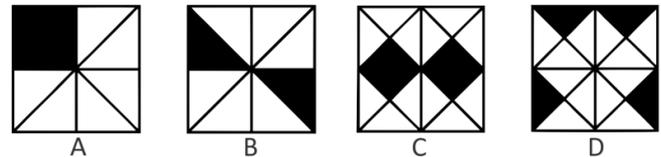
10. Eight light bulbs are connected as shown in the figure. Initially, all light bulbs are off. When a light bulb is touched, it light up and all the light bulbs connected to it directly also light up. At least how many light bulbs should be touched so that all bulbs light up?



- (A) 2            (B) 3            (C) 4            (D) 5            (E) 6

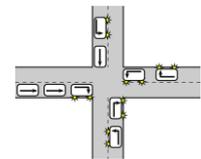
## 4 point problems

11. In which of the four squares is the ratio of the area of the black part to the area of the square is the largest?



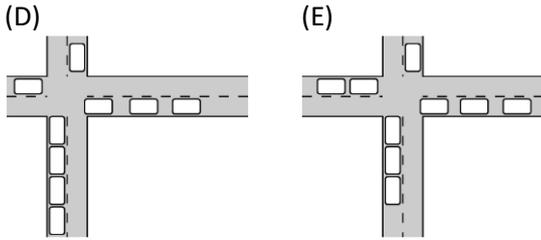
- (A) A            (B) B            (C) C            (D) D            (E) They are all the same.

12. Nine cars arrive at a crossroads where some go forward and others will turn as indicated by the arrows. Which of the following figures shows the nine cars after leaving the crossroads?



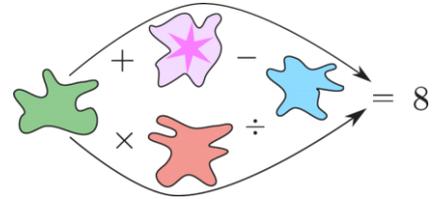
- (A)            (B)            (C)

# KSF 2018 – Level B



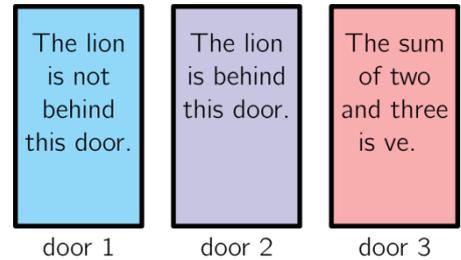
**13.** Each of the spots covers one of the numbers 1, 2, 3, 4 or 5 so that the calculations following the arrows are correct. What number is covered by the spot with a star?

- (A) 1      (B) 2      (C) 3      (D) 4      (E) 5



**14.** A lion is behind one of these three doors. A sentence is written on each door and only one of the three sentences is true. Behind which door is the lion?

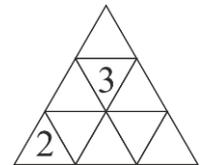
- (A) Door 1.  
 (B) Door 2.  
 (C) Door 3.  
 (D) It may be in any room.  
 (E) It may be in either room 1 or room 2.



**15.** Two girls, Anna and Berta and three boys, Charles, Dave and Erick play with a ball. When a girl has the ball, she throws it to the other girl or to a boy. When a boy has the ball, he throws it to another boy but never to the boy from whom he just received it. Anna starts by throwing the ball to Charles. Who will do the fifth throw?

- (A) Charles      (B) Anna      (C) Dave      (D) Berta      (E) Erick

**16.** Emily wants to write a number into each cell of the triangular table shown, and she has already entered two of them. The sum of the numbers in two cells with one common side must be the same for all pairs of cells with a common side. What will be the sum of all the numbers written in the table?



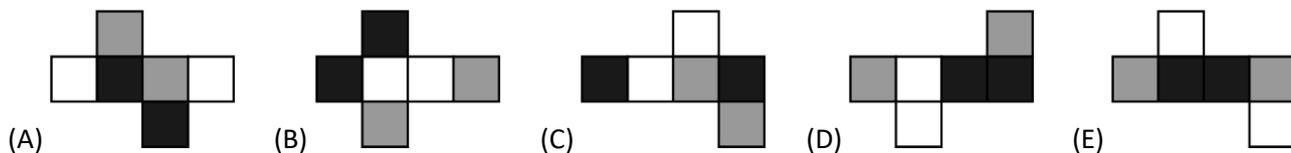
- (A) 18      (B) 19      (C) 20      (D) 21      (E) 22

**17.** On Monday morning, Alexandra shared a picture with five friends. For several days, everybody who had received the picture sent it in the next day to two friends who haven't seen the picture yet. On which day does the number of people who have seen the picture becomes greater than 100?

- (A) Wednesday      (B) Thursday      (C) Friday      (D) Saturday      (E) Sunday

**18.** The faces of a cube are painted black, white or grey so that opposite faces are of different colors. Which of the following is NOT a possible net of this cube?

## KSF 2018 – Level B

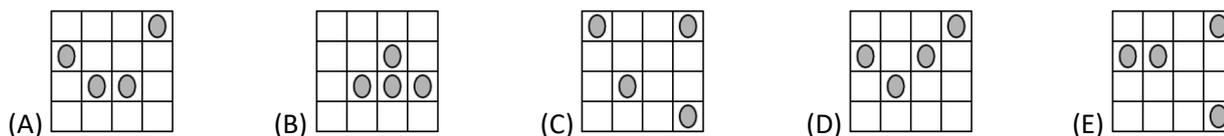
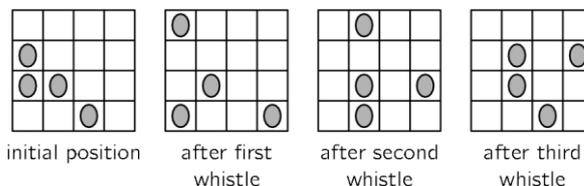


19. In the shown calculation,  $A$ ,  $B$ ,  $C$  and  $D$  represent digits. What is the digit represented by  $B$ ?

- (A) 0      (B) 2      (C) 4      (D) 5      (E) 6

$$\begin{array}{r} ABC \\ + CBA \\ \hline DDDD \end{array}$$

20. Four ladybugs sit on different cells of a  $4 \times 4$  grid. One of them is sleeping and does not move. Each time you whistle, the other three ladybugs move to a free neighbouring cell. They can move up, down, right or left but they are not allowed to go back to the cell they just came from. Which of the following images might show the result after the fourth whistle?



### 5 point problems

21. Given the numbers 1, 2, 3, 4, 5, 6, 7, Mary chose three different numbers whose sum is eight and Joana chose three different numbers whose sum is seven. How many common numbers have been chosen by both girls?

- (A) None.      (B) One.      (C) Two.      (D) Three.      (E) Impossible to know.

22. The sum of the ages of Kate and her mother is 36, and the sum of the ages of her mother and her granny is 81. How old was her granny when Kate was born?

- (A) 28      (B) 38      (C) 45      (D) 53      (E) 56

23. If  $A$ ,  $B$ ,  $C$  are distinct digits, then the greater possible 6-digit number written using 3 digits  $A$ , 2 digits  $B$ , and 1 digit  $C$  cannot be equal to

- (A) AAABBC      (B) CAAABB      (C) BBAAAC      (D) AAABCB      (E) AAACBB

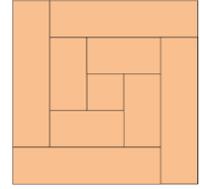
24. Nick wants to arrange the numbers 2, 3, 4, ..., 10 into several groups such that the sum of the numbers in each group is always the same. At most, how many groups can he get?

- (A) 2      (B) 3      (C) 4      (D) 5      (E) 6

# KSF 2018 – Level B

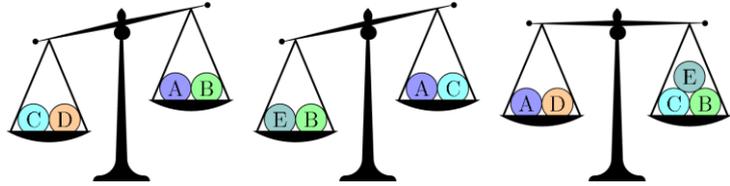


25. Peter saw an 8 cm wide wooden shelf into 9 parts. One piece was a square, the rest were rectangles. Then he put all the pieces together as shown in the picture. How long was the shelf?



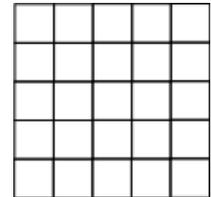
- (A) 150 cm      (B) 168 cm      (C) 196 cm      (D) 200 cm      (E) 232 cm

26. Five balls weigh 30g, 50g, 50g, 50g and 80g, respectively. Which ball weighs 30g?



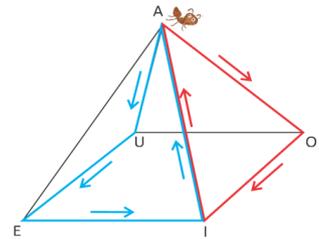
- (A) A                      (B) B                      (C) C                      (D) D                      (E) E

27. Write 0 or 1 in each cell of the 5×5 table such that each 2×2 square of the table contains exactly three equal numbers. What is the largest possible sum of all the numbers written in the table?



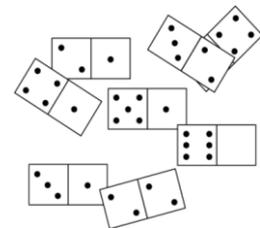
- (A) 18                      (B) 19                      (C) 20                      (D) 21                      (E) 22

28. Ana, the ant, starts from point A of a pyramid and walks along its edges until it returns to point A, without going through the same edge twice.  $A \rightarrow O \rightarrow I \rightarrow A$  and  $A \rightarrow U \rightarrow E \rightarrow I \rightarrow A$  are two different paths. Observe also that  $A \rightarrow O \rightarrow I \rightarrow A$  and  $A \rightarrow I \rightarrow O \rightarrow A$  are two different paths. How many different paths can Ana do?



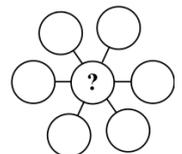
- (A) 8                      (B) 12                      (C) 16                      (D) 24                      (E) 32

29. There are eight domino tiles on the table and one of them is half covered by other tile. These eight tiles can be arranged into a 4×4 table, so that the number of dots in each row and in each column is the same. How many dots are on the covered part in the figure?



- (A) 1                      (B) 2                      (C) 3                      (D) 4                      (E) 5

30. Write the numbers 3, 4, 5, 6, 7, 8 and 9 in the seven circles to obtain equal sums along each of the three lines. What is the sum of all possible numbers replacing the question mark?



- (A) 3                      (B) 6                      (C) 9                      (D) 12                      (E) 18