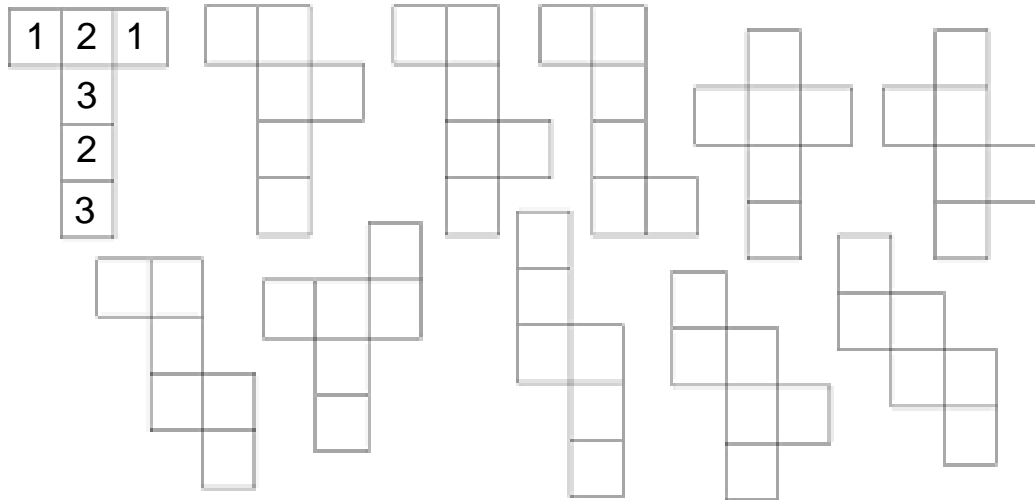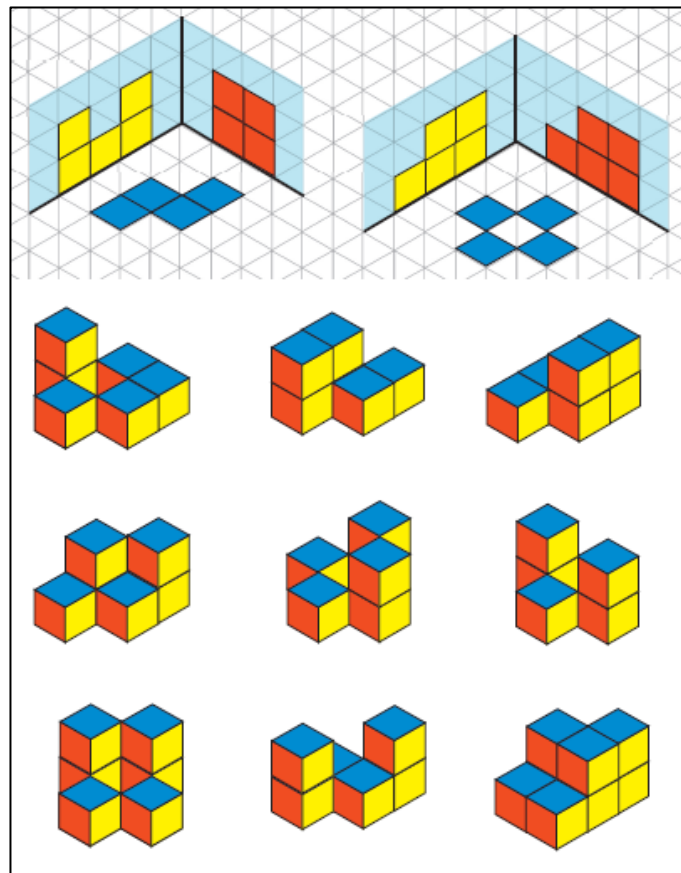**Math Mosaic Circles**

Group "Gauss"

PROBLEMS BELOW ARE EXAMPLES OF ASSIGNMENTS FROM VARIOUS TOPICS THROUGHOUT THE YEAR

1. Below are all 11 nets of a cube. Choose 5 nets and place the numbers 1, 2 and 3 on the faces of the cube so that the opposite faces have the same numbers.
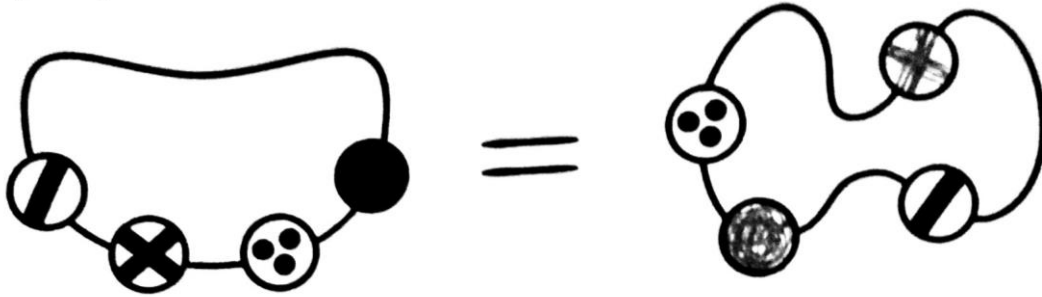

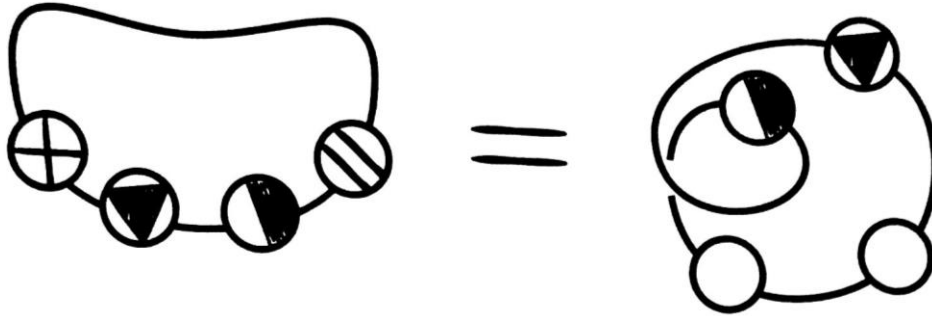2. Find the structure to match each set of shadows. (Source: Jane Kats, Dino 3-4)

Math Mosaic Circles

3. Lila's kitten was playing with her string necklaces and tangled them up. Draw in the beads so that the tangled necklace looks the same as the untangled one.
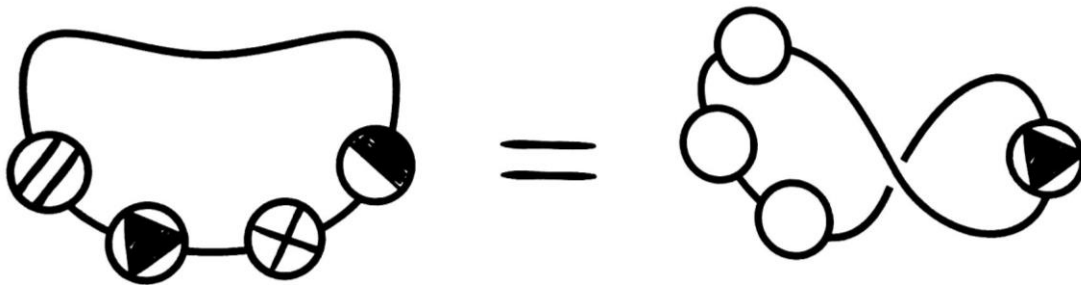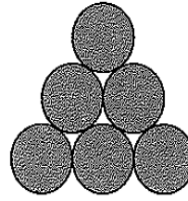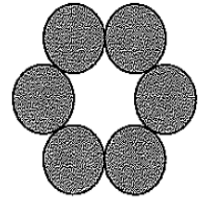
Example:

1.

2.

Math Mosaic Circles

4. Practice Kangaroo problems

8. The figure shown in Picture 1 was made out of six identical coins. What is the smallest number of coins that we need to move to make the figure shown in Picture 2?

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

Picture 1   Picture 2

9. The sum of the digits of the year 2016 is equal to 9. What is the next year, after 2016, where the sum of the digits of the year is equal to 9 again?

(A) 2007   (B) 2025   (C) 2034   (D) 2108   (E) 2134

10. Each time Pinocchio lies, his nose gets 6 cm longer. Each time he tells the truth, his nose gets 2 cm shorter. After his nose was 9 cm long, he told three lies and made two true statements. How long was Pinocchio's nose afterwards?

(A) 14 cm   (B) 15 cm   (C) 19 cm   (D) 23 cm   (E) 31 cm

12. Mary had equal numbers of white, black and striped tokens. She used some of the tokens to make the pile shown in the figure.
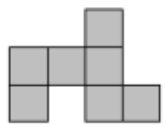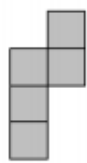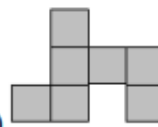
She still has five tokens which are not in the pile. How many black tokens did she have in total?
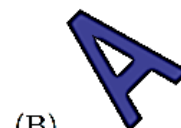
(A) 5   (B) 6   (C) 7   (D) 10   (E) 15
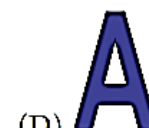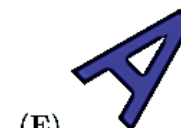
13. The solid in the picture was made by sticking eight equal cubes together. What does this solid look like when seen from above?
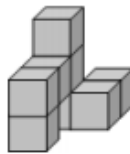
(A)   (B)   (C)   (D)   (E)

Math Mosaic Circles

Group "Gauss"

16. Which is next?

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

 # 17. The number of dwarfs that can fit under a mushroom is equal to the number of dots on the mushroom cap. The picture below shows one side of each mushroom. The number of dots on the other side is the same. If 30 dwarfs are seeking shelter from the rain, how many dwarfs will get wet?

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

19. Ann has a square sheet of paper: . She cuts these pieces: out of the sheet, as many as possible. How many pieces does she get?

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