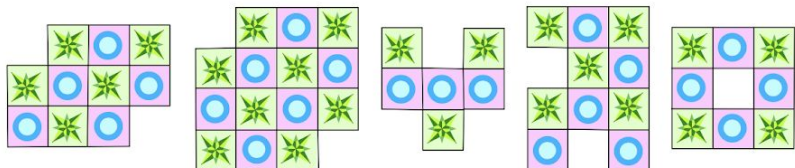


Math Kangaroo Problems
 UCLA Olga Radko Math Circle Beginners 2
 3/7/2021

Question 1:

Roberto makes designs using tiles like this . How many of the 5 designs can he make?



(A) 1

(B) 2






















(C) 3





(D) 4

(E) 5

Question 2:

Albert fills the grid below with five figures. Each figure appears exactly once in every column and every row. Which figure must Albert put in the square with the question mark?

				
				
				
			?	
				

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

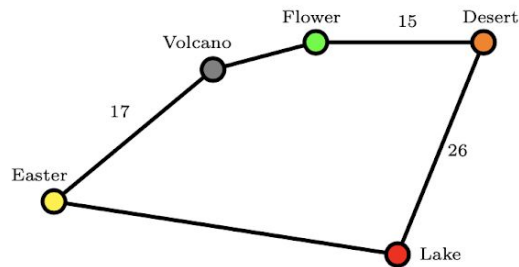
Question 3:

A rabbit has 20 carrots. It eats 2 carrots every day. If it ate the 12th carrot on Wednesday, which day did the rabbit start eating the carrots?

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

Question 4:

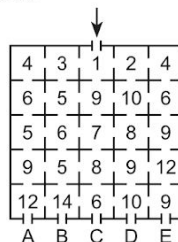
Captain Kook wants to sail from the island called Easter through every island on the map and back to Easter. The total journey is 100 km long. Some of the distances between each island have been written in the picture as shown below. For example, the distance between Easter Island and Volcano Island is 17 km. The distance between Desert Island and Lake Island is the same as the distance between Easter Island and Flower Island through Volcano Island. What is the distance between Easter Island and Lake Island?



- (A) 17 km (B) 23 km (C) 26 km (D) 33 km (E) 35 km

Question 5:

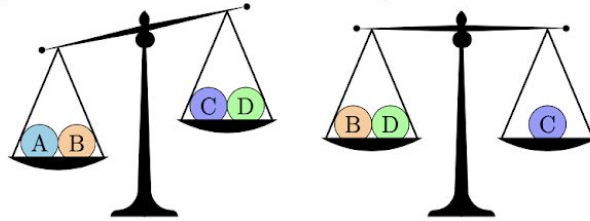
The rooms in Kanga's house are numbered from 1 to 14. Baby Roo enters the main door as indicated by the arrow show in the picture below. He passes through some rooms before leaving the house in one of the doors labeled A, B, C, D and E. The numbers of the rooms that he visits are always increasing. Through which door does he leave the house?



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

Question 6:

Four balls each weigh 10, 20, 30 and 40. Which ball weighs 30?



- (A) A
- (B) B
- (C) C
- (D) D
- (E) It could be A or B

Question 7:

In an ancient language the symbols represent the following numbers 1, 2, 3, 4, and 5.

Nobody knows which symbol represents which number.

We know that:

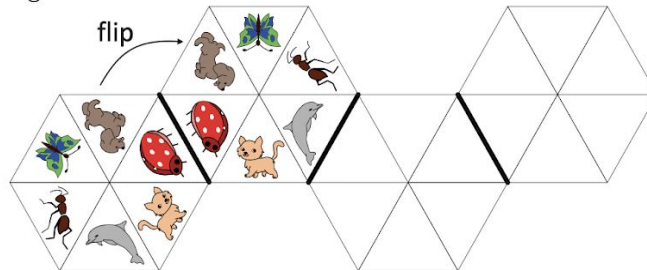
+ =
 + =
 + =

Which symbol represents the number 3?

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

Question 8:

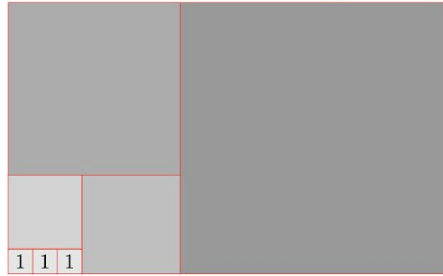
The stained glass tile is flipped. One of the flips is shown. What does the stained glass tile look like at the far right of the figure shown below?



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

Question 9:

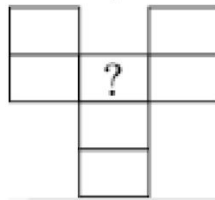
The large rectangle is made up of different sized squares as shown in the picture below. The 3 small squares each have an area of 1. What is the area of the large rectangle?



- (A) 165 (B) 176 (C) 187 (D) 198 (E) 200

Question 10:

Loes wants to write the numbers from 1 to 7 in the boxes shown below. Two consecutive numbers cannot be written in two neighbouring boxes. Neighbouring boxes share a common side. What numbers can she write in the box marked with a question mark?



- (A) all seven numbers (B) only odd numbers (C) only even numbers (D) only number 4
 (E) only the numbers 1 or 7

Red Chilli Pepper Problem

A widely used Roman coin was called a *denarius*. The plural form of the word is *denarii*. The value of one denarius is currently (in 2020) estimated at about three US dollars and sixty-two cents. The silver denarius below features the first Roman emperor, Augustus.



Together, Brutus and Cornelia had XC denarii. If Brutus gave X denarii to Cornelia, the girl would have had twice as much money as the boy. How much money did each of the kids have?

Brutus had _____ and Corenlia had _____ denarii.