

Math Kangaroo Problems

UCLA Olga Radko Math Circle Beginners 2

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Warm-Up

Three craft sticks number I, II, III lie on the table as shown in the picture below.



Is it possible to remove stick II from the center without touching it? Circle the correct answer. If you think it is a yes, use the blank space below to show how.

Yes

No

Math Kangaroo Problems

Question 1:

In the table below, the correct sums are shown. What number is in the box with the question mark?

	+	11	7	2
6		17	13	8
			?	11

(A) 10

(B) 12

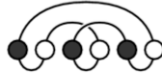
(C) 13

(D) 15

(E) 16

Question 2:

Which option shows the necklace below when it is untangled?



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

Question 3:

Which option is correct?

$$\text{Blue Circle} + \text{Blue Circle} + \text{Blue Circle} + \text{Blue Circle} + \text{Red Square} = \text{Red Square} + \text{Red Square} + \text{Red Square}$$

- (A) $\text{Blue Circle} = \text{Red Square}$ (B) $\text{Blue Circle} + \text{Blue Circle} + \text{Blue Circle} = \text{Red Square}$ (C) $\text{Red Square} + \text{Red Square} + \text{Red Square} = \text{Blue Circle}$
 (D) $\text{Red Square} + \text{Red Square} = \text{Blue Circle}$ (E) $\text{Blue Circle} + \text{Blue Circle} = \text{Red Square}$

Question 4:

Balloons are sold in packets of 5, 10 and 25. Marius buys exactly 70 balloons. What is the smallest number of packets he could buy?

- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7

Question 5:

Numbers are placed in the cells of the 4×4 square shown in the picture below. Mary selects any 2×2 square in 4×4 square and adds up all the numbers in the four cells. What is the largest possible sum she can get?

1	2	1	3
4	1	1	2
1	7	3	2
2	1	3	1

- (A) 11 (B) 12 (C) 13 (D) 14 (E) 15

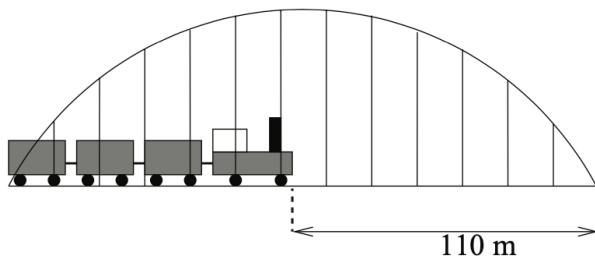
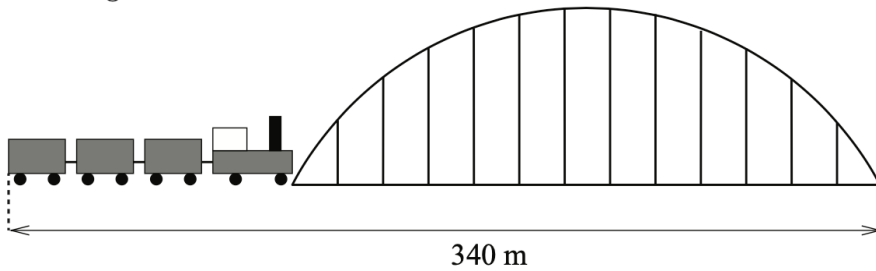
Question 6:

David wants to cook 5 dishes on a stove with only 2 burners. The time he needed to cook the 5 dishes are 40 mins, 15 mins, 35 mins, 10 mins and 45 mins . What is the shortest possible time in which he can cook all 5 dishes? (He can only remove a dish from the stove when it is fully cooked.)

- (A) 60 min (B) 70 min (C) 75 min
(D) 80 min (E) 85 min

Question 7:

How long is the train?



- (A) 55 m (B) 115 m (C) 170 m (D) 220 m (E) 230 m

Question 8:

A small zoo has a giraffe, an elephant, a lion and a turtle. Susan wants to plan a tour where she sees 2 different animals. She does not want to start with the lion. How many different tours can she plan?

- (A) 3 (B) 7 (C) 8 (D) 9 (E) 12

Question 9:

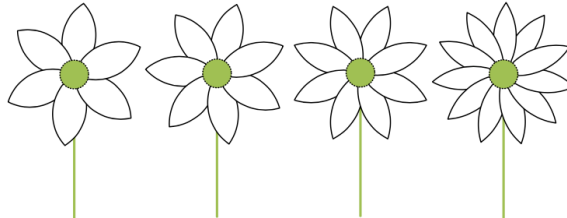
Zosia has hidden some smileys in some of the squares in the table. In some of the other squares she writes the number of smileys in the neighbouring squares as shown in the picture. Two squares are said to be neighbouring if they share a common side or a common corner. How many smileys has she hidden?

	3	3	
2			
		2	
	1		

- (A) 4 (B) 5 (C) 7 (D) 8 (E) 11

Question 10:

Kate has 4 flowers, one with 6 petals, one with 7 petals, one with 8 petals and one with 11 petals. Kate tears off one petal from three flowers. She does this several times, choosing any three flowers each time. She stops when she can no longer tear one petal from three flowers. What is the smallest number of petals which can remain?



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

Red Chilli Pepper Problem

1. *Selling apples at a market in Ancient Rome, farmer Aurelius made the following observation. **“If I add a half of the number of the apples I have and then X more to the number of the apples I have, I get C.”** How many apples did farmer Aurelius have? Use Roman Numerals to solve the problem. Do not use decimals.*

Answer: Farmer Aurelius had _____ apples.

2. *Did farmer Aurelius know that he lived in Ancient Rome?*
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