



Till läraren

Välkommen till Kängurutävlingen – Matematikens hopp 2022 *Ecolier*

- Tävlingen genomförs under perioden 17 mars – 25 mars. *Uppgifterna får inte användas tidigare.*
- Sista dag för redovisning av antalet deltagare är den 1 april. Du får då tillgång till facit och ett kalkylblad där du matar in elevernas svar och sedan får du en sammanställning av klassens resultat.
- Redovisa resultatet senast 29 april.
- *Tävlingen är individuell* och eleverna får arbeta i 60 minuter. De tre delarna ska genomföras vid *ett och samma tillfälle*.
- Eleverna behöver ha tillgång till papper för att kunna göra anteckningar och figurer. Linjal behövs inte.
- *Miniräknare eller sax får inte användas. Observera att telefoner, datorplattor och datorer inte heller får användas.*
- Läs igenom problemen själv i förväg så att eventuella oklarheter kan redas ut.
- Kontrollera att kopiorna blir tillräckligt tydliga så att nödvändiga detaljer syns.
- Besök *Kängurusidan* på ncm.gu.se/kanguru där vi publicerar eventuella rättelser och ytterligare information. Där finns också information om hur kalkylbladet fungerar.
- Samla in problemformulären efter tävlingen. Problemen får inte spridas utanför klassrummet förrän efter 29 april, men ni får gärna arbeta med problemen i klassen.

Mikael Passares stipendium

Mikael Passare (1959–2011) var professor i matematik vid Stockholms universitet. Han hade ett stort intresse för matematikundervisning på alla nivåer och var den som tog initiativ till Kängurutävlingen i Sverige. Mikael Passares minnesfond har instiftat ett stipendium för att uppmärksamma elevers goda matematikprestationer. Information om hur du nominerar elever kommer tillsammans med facit och kommentarer.

Lycka till med årets Känguru!

e-post: kanguru@ncm.gu.se

För administrativa frågor, vänd dig till Ann-Charlotte Forslund:

Ann-Charlotte.Forslund@ncm.gu.se

031–786 69 85

För innehållsfrågor, vänd dig till Ulrica Dahlberg eller Johan Häggström:

ulrica.dahlberg@ncm.gu.se

johan.haggstrom@ncm.gu.se



Svarsblankett

Markera ditt svar i rätt ruta

Uppgift	A	B	C	D	E	Poäng
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
SUMMA						

Namn:.....

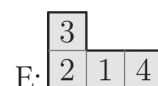
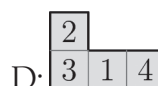
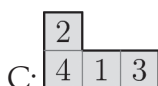
Klass:.....



- 6 Two squares with common sides may not contain the same number.

Which piece is missing?

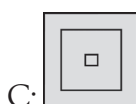
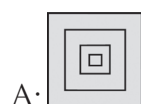
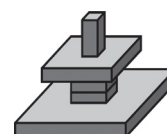
3	2	5	4	2	1
1	4	3	1	3	4
2	5		5	2	1
4	1				3
3	2	4	2	5	2
4	1	3	1	3	4



Danmark

- 7 Johanna builds the tower shown.

What will she see if he looks at her tower from above?



Grekland

- 8 Every box shows the result of the number on the left and on the top.

Which number is written behind the heart?

	•	3	?
5		15	35
4		12	♥

A: 25

B: 27

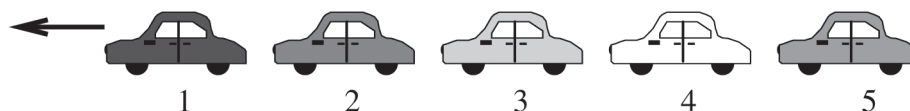
C: 28

D: 29

E: 30

Four points problems

- 9 Five cars numbered 1, 2, 3, 4 and 5 are moving in the same direction



First, the last car (5) overtakes the two cars ahead of it.
Next, the second last car overtakes the two cars ahead of it.
Finally, the middle car overtakes the two cars ahead of it.

In what order are the cars now?

A: 1, 2, 3, 5, 4

B: 2, 1, 3, 5, 4

C: 2, 1, 5, 3, 4

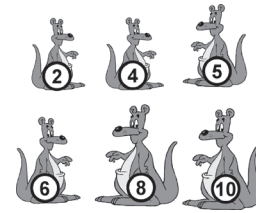
D: 3, 1, 4, 2, 5

E: 4, 1, 2, 5, 3

Polen



- 10 The ages of the kangaroos are 2, 4, 5, 6, 8 and 10 years.
The sum of the ages of four of them is 22 years.



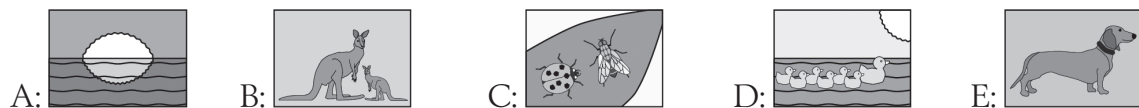
What are the ages of the other two kangaroos?

- A: 2 år och 8 år B: 4 år och 5 år C: 5 år och 8 år
D: 6 år och 8 år E: 6 år och 10 år

Grekland

- 11 Five friends have got postcards.
There are *no* ducks on Mike's card.
Fatima's card has a sun on it.
There are exactly two living creatures on Paula's card.
Leo's card has a dog on it.
There are kangaroos on Hector's card.

Which card did Mike get?



Tyskland

- 12 The sum of the three numbers in each row and in each column of the grid has to be the same.
There is a mistake here.

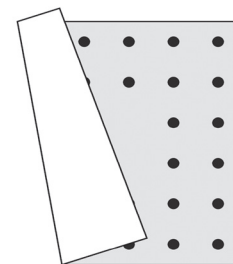
9	1	5
3	7	6
4	7	4

Which number must be corrected?

- A: 1 B: 3 C: one of the 4s D: 5 E: one of the 7s

Grekland

- 13 Aladdin has a square carpet.
There are the same number of dots, arranged in two lines, along each side of his carpet.
Unfortunately, the carpet has folded.



How many dots are there on Aladdin's carpet?

- A: 48 B: 44 C: 40 D: 36 E: 32

Polen

- 14 The small caterpillar shown in the picture curls up to sleep.
What might that look like?



Tyskland

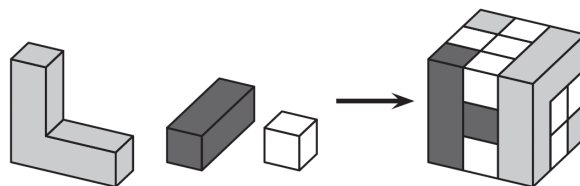


- 15 The pupils in Roberts's class sit in rows.
There are the same number of pupils in each row.
There are 2 rows of pupils in front of Robert and 1 row of pupils behind him.
In his row, there are 3 pupils on his left and 5 pupils on his right.
How many pupils are there in this class?

A: 10 B: 17 C: 18 D: 27 E: 36

Filippinerna

- 16 The cube in the picture is built from the three kinds of wooden blocks shown.
How many white wooden blocks are used?



A: 8 B: 11 C: 13 D: 16 E: 19

Filippinerna

Five points problems

- 17 Vanja chose a few of the following shapes and said:
Amongst the shapes I have chosen, there are
2 black ones, 2 large ones and 2 round ones.



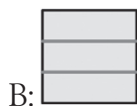
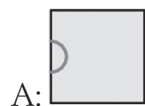
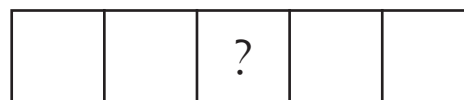
What is the smallest number of the following shapes
that Vanja could have chosen?

A: 2 B: 3 C: 4 D: 5 E: 6

Polen

- 18 Place the five tiles so that the lines form one continuous line.

Which tile will go in the middle?



- 19 Three football teams participate in a sports tournament.
Each team plays the other two teams exactly once.
In each game, the winner gets 3 points and the loser doesn't get any points.
If the game finishes in a draw, each team gets 1 point.

At the end of the tournament, which number of points is it impossible for any team
to have?

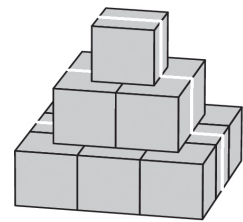
A: 1 B: 2 C: 4 D: 5 E: 6

Iran



- 20 A pyramid is built from cubes with a side-length of 10 cm.
An ant climbed up and over the pyramid, as shown by the line.

What is the length of the path walked by the ant across the pyramid?

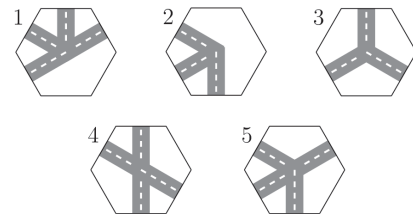
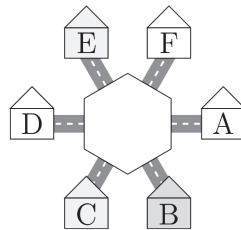


- A: 30 cm B: 60 cm C: 70 cm D: 80 cm E: 90 cm

Slovakien

- 21 Alma wants to put one of the pieces shown in the middle of the picture so that a child in A is able to travel to B and to E, but *not* to D.
She can rotate the pieces.

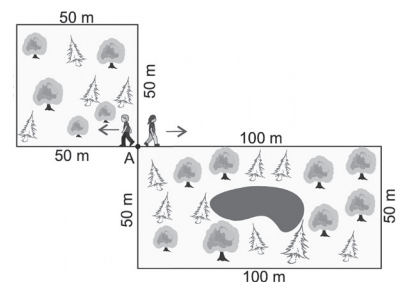
Which two pieces could she use?



- A: 1 and 2 B: 2 and 3 C: 1 and 4 D: 4 and 5 E: 1 and 5

Danmark

- 22 Ahmad and Said start moving from point A.
They walk with the same speed, but they take different ways.
Ahmad walks around the square-shaped garden.
Said walks around the bigger rectangular-shaped one.
They meet again at A.



What is the smallest number of laps around the square-shaped garden that Ahmad could do to meet Said there?

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

Iran

- 23 Five children ate some plums.
Laura ate two plums more than Sofie. Boris ate three plums fewer than Laura.
Karl ate one plum more than Boris and three plums fewer than Alice.

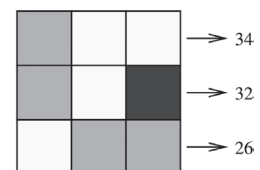
Which two children ate the same number of plums?

- A: Karl and Laura B: Karl and Sofie C: Laura and Alice
D: Sofie and Alice E: Alice and Boris

Polen

- 24 There shall be a number in each square.
Squares with same colour shall have the same number.
To the right of each row, the sum of the numbers in that row is given.

Which number shall be written in the black square?



- A: 6 B: 8 C: 10 D: 12 E: 14

Polen