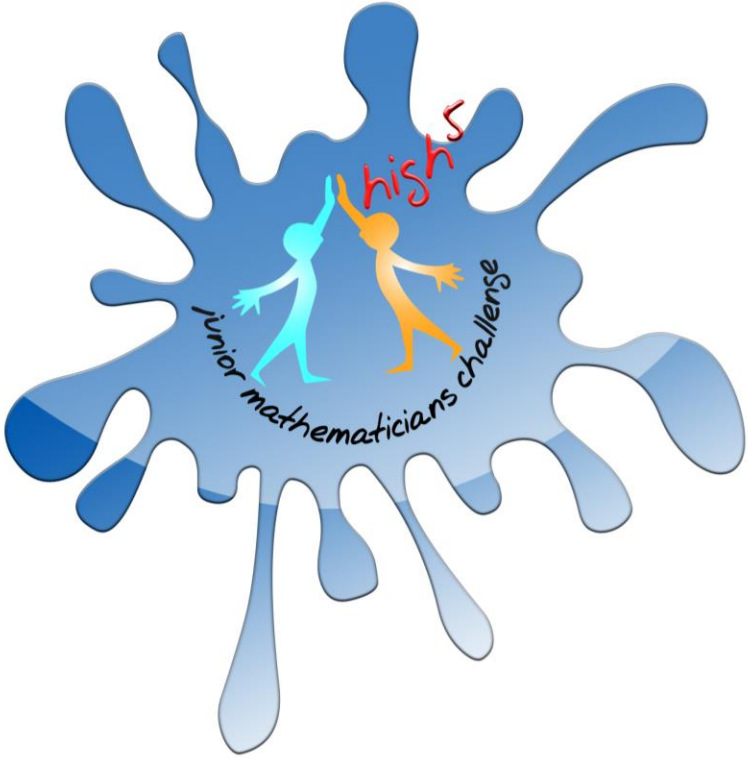


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HIGH 5
The Junior Mathematicians Challenge
PHASE 1 – QUALIFYING TEST



question no.	1	2	3	4	5	6	7	8	9	10
marks										

question no.	11	12	13	14	15	16	17	18	19	20
marks										

question no.	21	22	23
marks			

SCORE OBTAINED	
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Read the instructions carefully before the tests starts.

- This test is **1 hour** long.
- The use of calculator and protractor is not permitted during this test.
- Read each question carefully and attempt all questions.
- You do not need to answer the questions in order. Start from whichever question you want. If you cannot do one of the questions, go on to the next one.
- After attempting all the questions, go back and check your work.
- Any students caught cheating or copying will be disqualified.

Do your best!

Section A

Tick (✓) the correct answer in each question.

Each question carries 2 points.

1. Look carefully at the pattern below.
Which **number completes the pattern?**

1, 2, 5, 10, , 26, 37, 50

- a. 20
- b. 17
- c. 15
- d. 13
-

2. What is the **sum of the third and the fourth multiples of 6?**

- a. 7
- b. 18
- c. 24
- d. 42

3. Jack thinks of a number.
He **multiplies the number by itself**, then **adds 10** and **gets 110** as an answer.

What number does Jack think of **at the start**?

- a. 5
- b. 10
- c. 50
- d. 100

-
4. Below is the recipe for **10 muffins**.

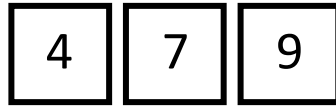


Chocolate Muffins Recipe	
	200 g flour
	180 g butter
	150 g sugar
	2 eggs
	2 tablespoons chocolate powder

What is the **maximum (largest) number of muffins** Martina can make if she has **9 eggs**?

- a. 4 muffins
- b. 40 muffins
- c. 45 muffins
- d. 50 muffins

5. Work out the **difference** between the **largest** and the **smallest three-digit numbers** you can make using these cards.
Each of these cards can be used once in every three-digit number.



- a. 974
- b. 468
- c. 495
- d. 225

6. Martha has 12 stickers. She gives $\frac{1}{3}$ of the stickers to her sister.
Then, she put $\frac{1}{2}$ of the remaining stickers on her diary.

How many stickers does she put on her diary?

- a. 2
- b. 4
- c. 6
- d. 9



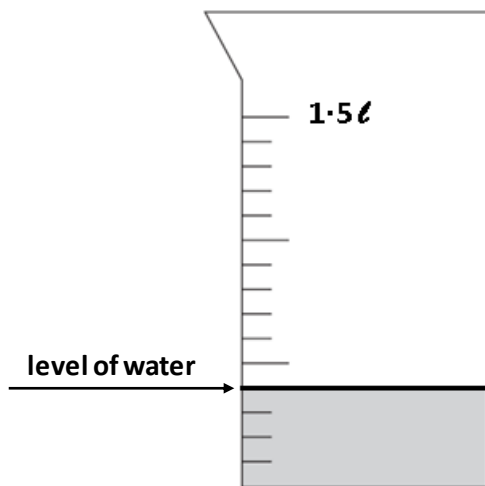
7. Which two numbers have a total of 10?

- a. 9.09 and 1.01
- b. 0.99 and 9.01
- c. 0.9 and 0.1
- d. 0.01 and 9.9

8. What is the **largest sum** you can make with **5 different euro coins**?

- a. €0.73
- b. €3.75
- c. €3.80
- d. €10

9. This jug contains some water.



How much water is in the jug?

- a. $\frac{2}{5} \text{ l}$
- b. $\frac{4}{5} \text{ l}$
- c. $\frac{1}{8} \text{ l}$
- d. $\frac{1}{2} \text{ l}$

10. The last film at the cinema starts at **11:45 pm**.
It ends **110 minutes later**.
At what time does the film end?

- a. 12:55 am
- b. 12:55 pm
- c. 2:35 am
- d. 1:35 am



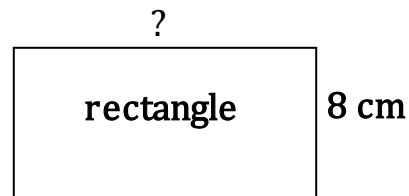
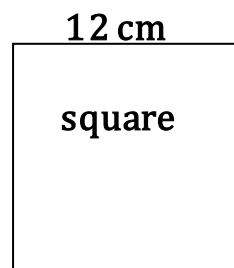
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11. Which of the measures below is the **same as 2.4 m**?

- a. 2.04 km
- b. 0.024 km
- c. 2400 cm
- d. 240 cm

12. **2 books** cost as much as **5 pens**.
If **4 books** cost **€12**, what is the cost of **1 pen**?

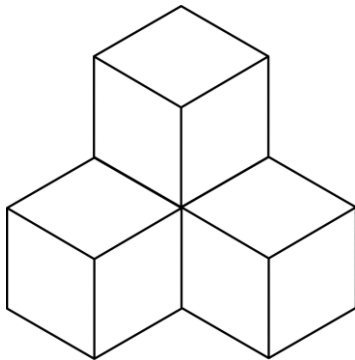
- a. €1.02
- b. €1.20
- c. €3.60
- d. €6.00

-
13. The **square** and the **rectangle** below have the **same perimeter**.
What is the length of the rectangle?



- a. 48 cm
- b. 16 cm
- c. 24 cm
- d. 40 cm

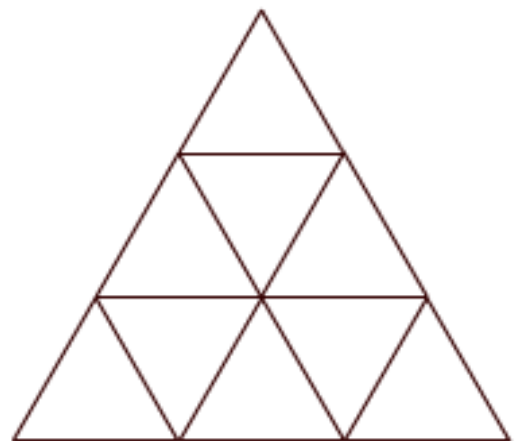
14. The design below is made up of 4 identical cubes. What is the **least number of such cubes** that must be **added** to the design to make a larger cube?



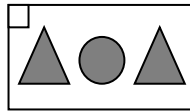
- a. 1
- b. 2
- c. 3
- d. 4

-
15. How many **triangles** are there in the figure below?

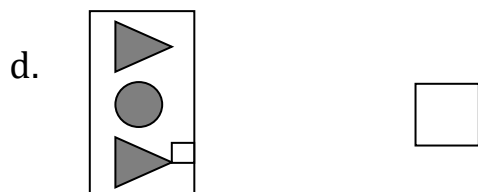
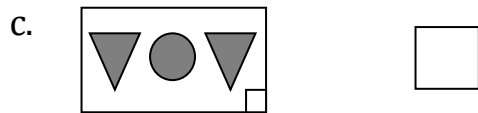
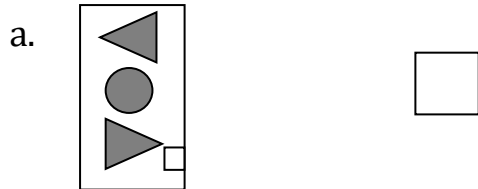
- a. 9
- b. 10
- c. 13
- d. 18



16. Anna draws some shapes on a paper as shown below.



Which of the papers below is the same one that Anna draws?





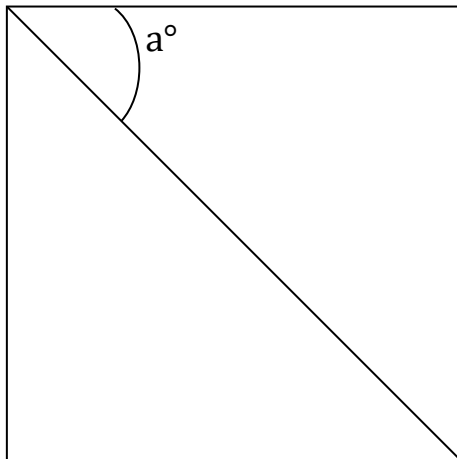
17. Ron is facing **North West**.

If he turns $2\frac{1}{2}$ **right angles clockwise**, what direction will he face?

- a. E
- b. SE
- c. W
- d. S

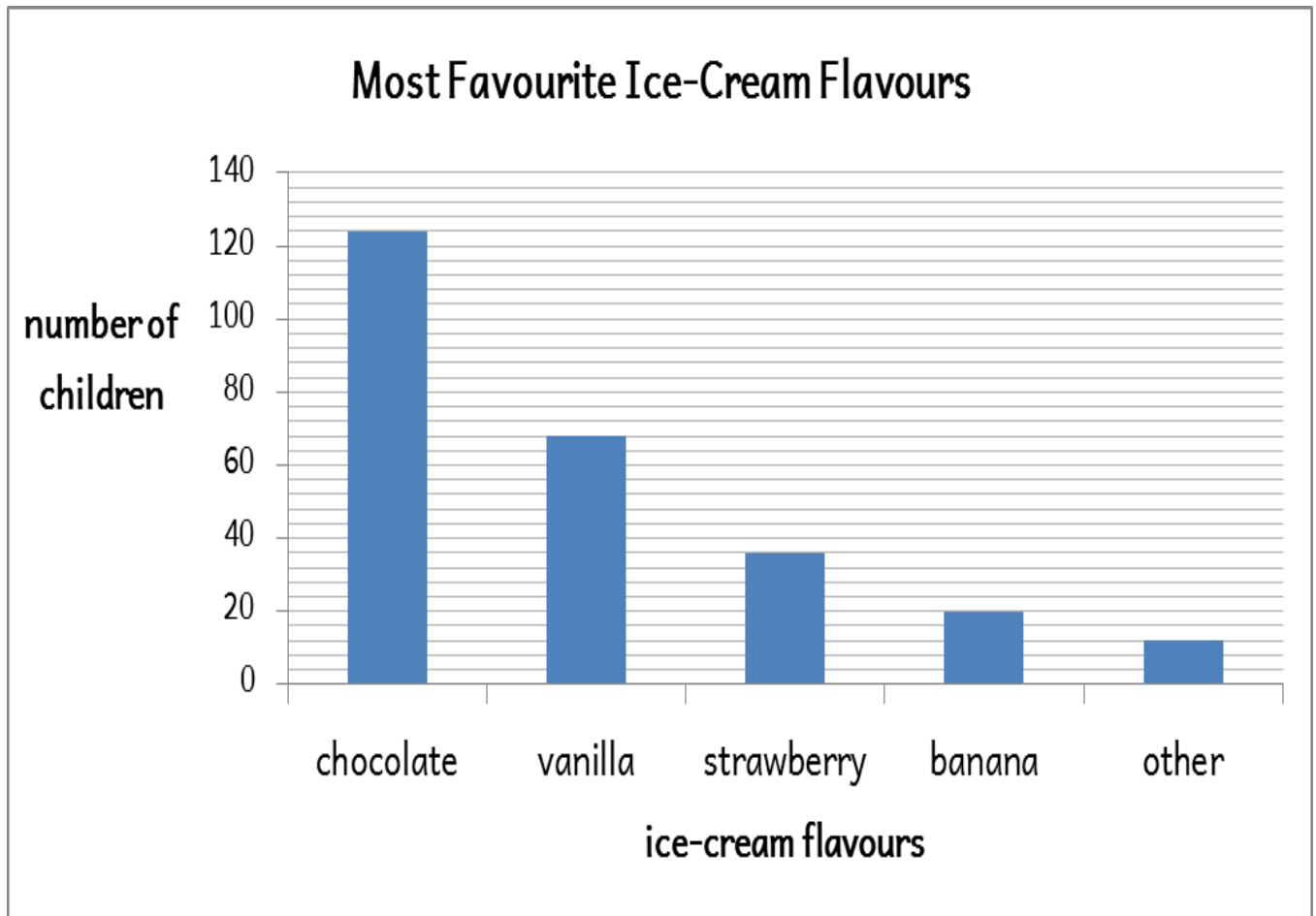
18. The **square** below is divided into **2 identical triangles**.

What is the size of the marked **angle a**?



- a. 30°
- b. 45°
- c. 60°
- d. 90°

19. The bar chart below shows the most favourite ice-cream flavours in SciMath school.
Every child in school had to choose one flavour.



One statement is **not correct**. Which one?

- a. Chocolate is the most favourite ice-cream flavour.
- b. There are 260 children in SciMath School.
- c. Banana is the least favourite ice-cream flavour.
- d. 68 students like vanilla best.

Section B
Show your working.
Each question carries **3 points**.

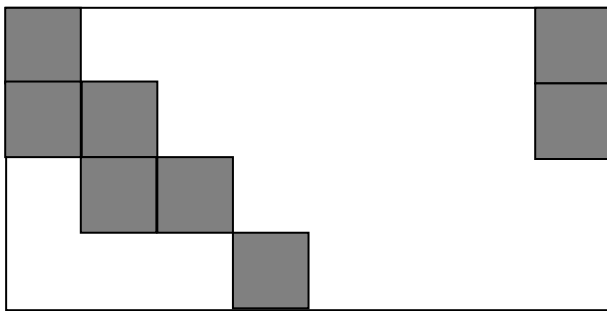
20. **Fill in** to make a correct calculation.

$$\begin{array}{|c|c|} \hline & \\ \hline \end{array} \times \begin{array}{|c|} \hline \\ \hline \end{array} = \begin{array}{|c|c|c|} \hline 5 & 7 & 6 \\ \hline \end{array}$$

21. This **rectangle** has **8 identical shaded squares** in it.

What **fraction of the rectangle** is shaded?

Note: The fraction you write has to be in its **lowest terms**.



22. There are **between 10 and 30 children** in Ms Maria's class.
When she organises the class in **groups of 4**, there is **one child** who is not in a group.
When she organises the class in **groups of 5**, there are **two children** who are not in a group.
How many children are there in Ms Maria's class?

children

-
23. Mum is 25 years older than her son Max, but she is 1 year younger than dad. Sara is half as old as her brother Max.
The total age of the mum, dad and Max is 87 years.
How old is Sara?



years

End of test