CODE: JMC ____ ____ ____

HIGH 5
JUNIOR MATHEMATICIANS CHALLENGE

Qualifying Test
9th March 2022

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	

primary MSTeam
fresh ideas start here

SCIENCE CENTRE
PEMBROKE MALTA

Section A

Tick (✓) the correct answer in each question.

Each question carries **2 points**.

1. Pam uses the number cards below to make different 3-digit numbers.

6	7	8	9

How many **different odd 3-digit numbers** can Pam make?

a. 10 ☐

b. 12 ☐

c. 20 ☐

d. 24 ☐

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2. **Add all** the **odd numbers** that are **greater than 0 and less than 100**.
What is your **answer**?

a. 2500 ☐

b. 2501 ☐

c. 4950 ☐

d. 4951 ☐

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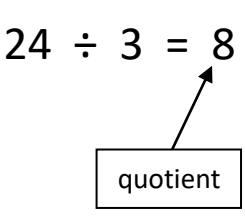
3. How many **2-digit numbers** leave a **remainder** which **is equal to the quotient** when **divided by 7**?

a. 5 ☐

b. 6 ☐

c. 7 ☐

d. 14 ☐



4. **Tick (✓)** the statement which is **always true.**

a. A square number has an odd number of factors. ☐

b. Multiples of 5 end in 5. ☐

c. When you multiply two numbers you will always get a bigger number. ☐

d. When you add 10 to a number, the answer is a multiple of 10. ☐

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5. Four of the five fractions below when added together **make 1**.

$$\frac{1}{2}, \quad \frac{1}{3}, \quad \frac{1}{6}, \quad \frac{1}{8}, \quad \frac{1}{24}$$

Which fraction is left out?

a. $\frac{1}{2}$ ☐ b. $\frac{1}{3}$ ☐ c. $\frac{1}{6}$ ☐ d. $\frac{1}{8}$ ☐

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6. The 8-digit numbers below are both **exactly divisible by 9**.
Two of the digits in these numbers have been replaced with A and B.
A represents a digit, and **B represents another digit**.

134525A1 and 72A3541B

Which digit does **B** represent?

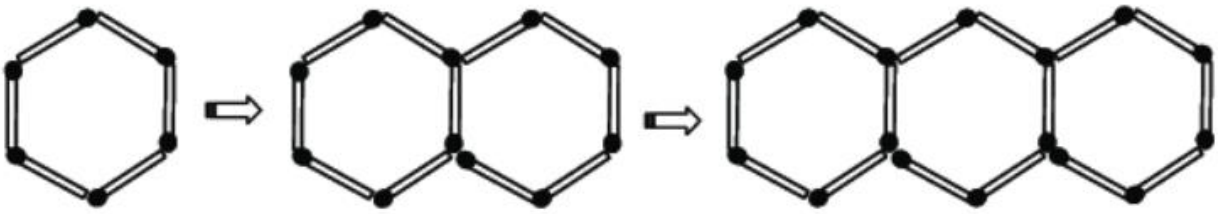
a. 0 ☐

b. 6 ☐

c. 8 ☐

d. 9 ☐

7. Study the matchsticks' pattern below carefully.
How many matchsticks are needed for **Shape 30**?



Shape 1 **Shape 2** **Shape 3**

a. 150 matchsticks ☐

b. 151 matchsticks ☐

c. 179 matchsticks ☐

d. 180 matchsticks ☐

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8. Alex constructs a **pyramid** that has **6 faces**.
How many edges does it have?

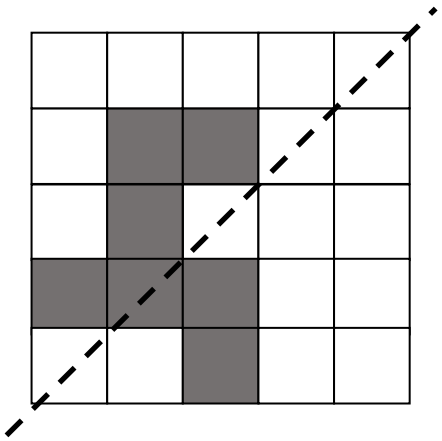
a. 10 edges ☐

b. 11 edges ☐

c. 12 edges ☐

d. 13 edges ☐

9. What is the **minimum number of squares** we need to shade so that the figure below has **only one line of symmetry** as shown below?



a. 2 ☐

b. 3 ☐

c. 4 ☐

d. 5 ☐

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10. There are a **total of 150 coins** in **two cash boxes**.
Twenty coins are shifted from the first cash box to the second cash box.
Now the number of coins in the **second box is twice the number of coins in the first cash box**.
What was the **initial number of coins** in the **first cash box** (**before the shift**)?

a. 30 coins ☐

b. 50 coins ☐

c. 70 coins ☐

d. 100 coins ☐

first cash box

second cash box

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11. Which of the following is the **same** as **7•08 m**?

a. 78 cm ☐

b. 78 m ☐

c. 708 mm ☐

d. 7080 mm ☐

12. The **number of minutes in 5 hours** is the **same** as the **number of hours** in:

a. 2•5 days ☐

b. 12 days ☐

c. 12•5 days ☐

d. 30 days ☐

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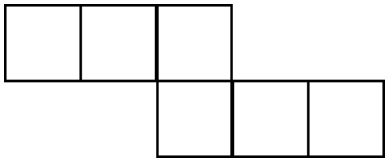
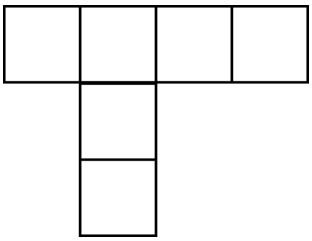
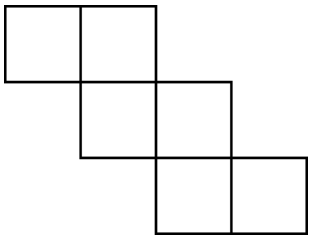
13. Which **two nets** can be folded to make **a cube**?



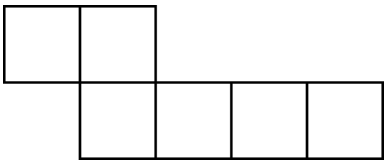
Net 1



Net 2



Net 3



Net 4

a. Net 1 ☐

b. Net 2 ☐

c. Net 3 ☐

d. Net 4 ☐

14. Arrange the following from the **lightest to the heaviest**.

7·38 kg 7 kg 38 g $7\ ^{1}/_{8}$ kg 7300 g

Tick (✓) the correct answer.

a. 7·38 kg, 7 kg 38 g, $7\ ^{1}/_{8}$ kg, 7300 g ☐

b. 7300 g, 7 kg 38 g, 7·38 kg, $7\ ^{1}/_{8}$ kg, ☐

c. $7\ ^{1}/_{8}$ kg, 7300 g, 7 kg 38 g, 7·38 kg ☐

d. 7 kg 38 g, $7\ ^{1}/_{8}$ kg, 7300 g, 7·38 kg ☐

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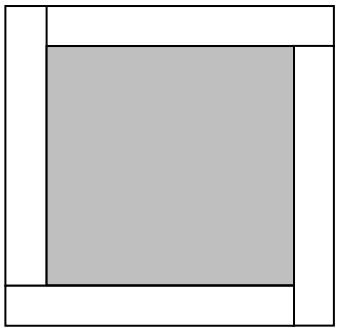
15. The diagram below is made up of **four identical rectangles**.
Each of these rectangles has a **perimeter of 16 cm**.
The **area** of the **shaded square** is **36 cm²**.



Which of the following is the **area of one rectangle**?

a. 6 cm^2 ☐

b. 7 cm^2 ☐

c. 8 cm^2 ☐

d. 15 cm^2 ☐

16. In a particular **leap year, February** had exactly **five Sundays**.
In that year, **1st February** was a:

a. Friday ☐

b. Saturday ☐

c. Sunday ☐

d. It is not possible to tell. ☐

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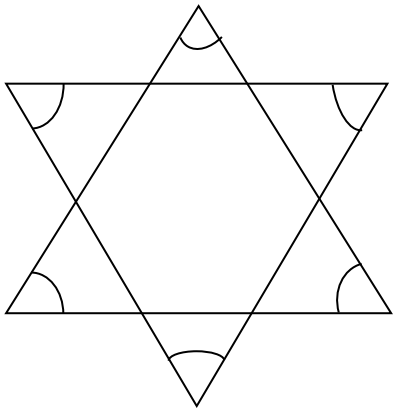
17. What is the **sum of all the marked angles**?

a. 180^o ☐

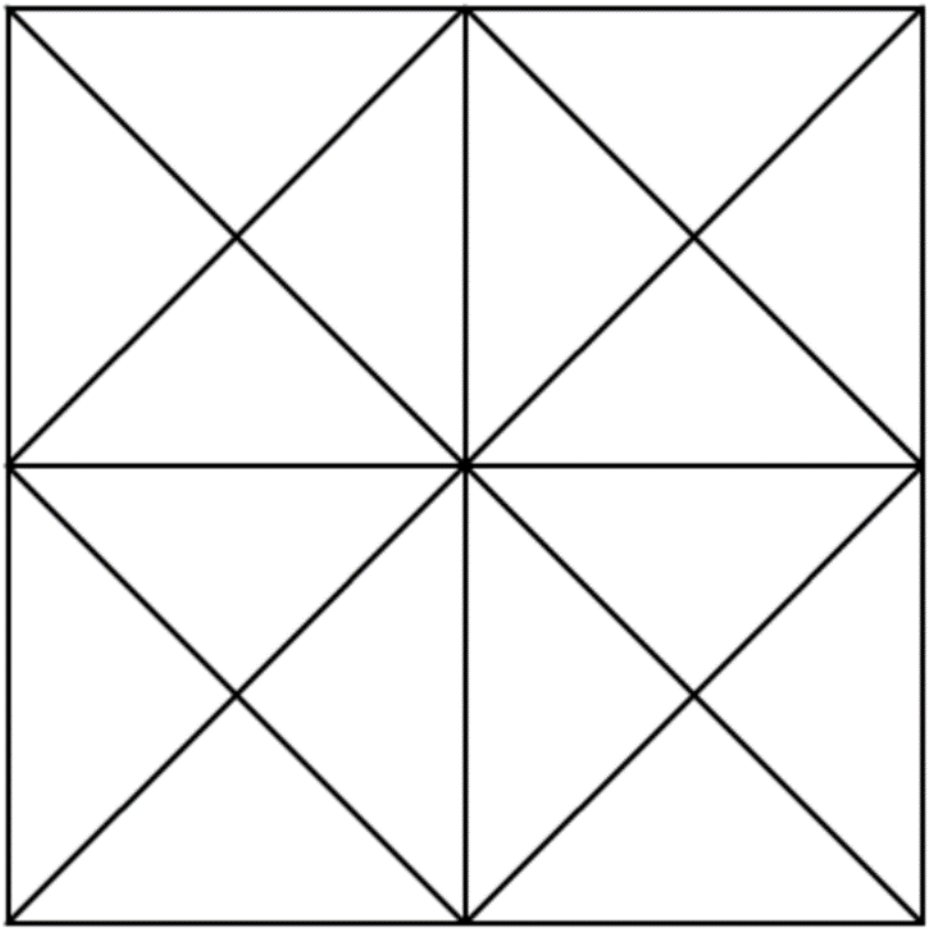
b. 360^o ☐

c. 540^o ☐

d. We cannot tell without measuring. ☐



18. How many **triangles** and **squares** are there in the diagram below?



a. 16 triangles and 5 squares ☐

b. 36 triangles and 9 squares ☐

c. 36 triangles and 10 squares ☐

d. 44 triangles and 10 squares ☐

19. Tania has a sack full of beanbags.
There are **10 blue beanbags** and **10 red beanbags** in the sack.
Tania starts taking beanbags out of the sack, one by one.
Every time Tania takes a beanbag out, she does not put it back.

What is the **least number of beanbags** Tania needs to take out of the sack to make sure that she has **no less than 6 blue beanbags and no less than 4 red beanbags**?

a. 10 beanbags ☐

b. 14 beanbags ☐

c. 16 beanbags ☐

d. 20 beanbags ☐

Section B

Show your working.

Each question carries **3 points**.

20. **399** is the **product** of **two 2-digit numbers**.
Which is the **greater** of these two numbers?

21. When the square below is completed with the numbers 1 to 5, **no row**, **no column or any of the two main diagonals contains the same number more than once**.

	◆			2
		1		
3		5		
			4	

Which number shall replace the ◆ ?

The number to replace the ◆ is _____ .

22. **Three children** shared **$^{2}/_{3}$ of a pizza equally**.
What fraction of the pizza did **each** child get?

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23. Which number has **exactly 9 different factors**, **two of which** are **4 and 7**?

The number is _____ .

End of test