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| CODE | |
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HIGH 5
The Junior Mathematicians Challenge
Final Test
20th April 2016



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|--------------|---|---|---|---|---|---|---|---|---|----|
| 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 | | | |

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| 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.

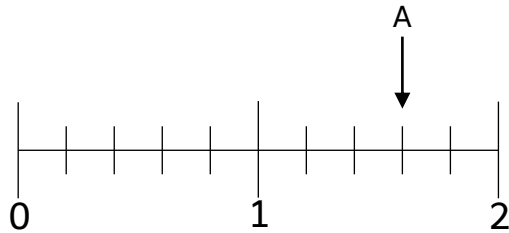
Do your best!

Section A

Tick (✓) the correct answer in each question.

Each question carries 2 points.


1. Which is the number represented by the letter A on the number line below?

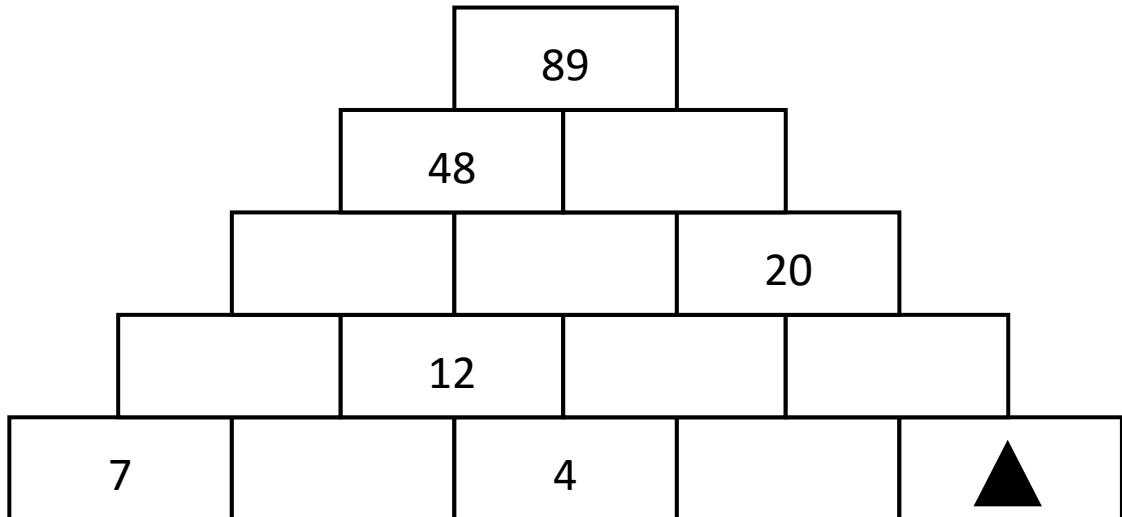


- a. 0.6
- b. 1.3
- c. $1\frac{3}{5}$
- d. $2\frac{1}{5}$
-

2. Which of the following has the same remainder when it is divided by 2 as when it is divided by 3?

- a. 3
- b. 5
- c. 7
- d. 11
-

3. The pyramid below is partly completed.
 Each rectangle is filled up with the sum of the two numbers in the rectangles immediately below it.
 Work out the value of the  .



- a. 1
- b. 4
- c. 6
- d. 8

4. Which of the following is **divisible by all of the integers from 1 to 10** (include 1 and 10)?

- a. 23×34
- b. 23×45
- c. 45×56
- d. 67×78

5. What is the **difference** between the **smallest 4-digit number** and the **largest 3-digit number**?

a. 1

b. 10

c. 100

d. 989

6. What is the **missing number** in the box?

$$\frac{\square}{9} = 4 \frac{2}{3}$$

a. 6

b. 8

c. 14

d. 42

7. The **first (1st) multiple of 8** is **8**.

What is the **sum** of the **second (2nd)** and **seventh (7th) multiple of 8**?

a. 18

b. 22

c. 58

d. 72

8. How many **minutes** in **4•25 hours**?

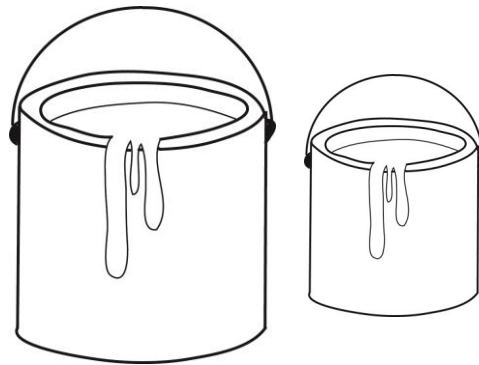
- a. 255 minutes
- b. 265 minutes
- c. 415 minutes
- d. 425 minutes

9. A **large tin** of paint holds **5 litres** of paint.

The **small tin** holds **half as much paint** as the large tin.

How much paint is there in **2 large tins** and **2 small tins**?

- a. 7•5 litres
- b. 12 litres
- c. 15 litres
- d. 20 litres



10. The flight from **Amsterdam** to **Malta** was **2 hours and 50 minutes** long.

The plane arrived in Malta at **quarter to 1 in the morning**.

At what time did the plane **depart** from the airport in Amsterdam?

- a. 9:25 p.m.
- b. 9:55 p.m.
- c. 10:25 p.m.
- d. 10:55 p.m.



11. This year John turned 25 and Maria celebrated her 15th birthday. In which year will their ages total 50?

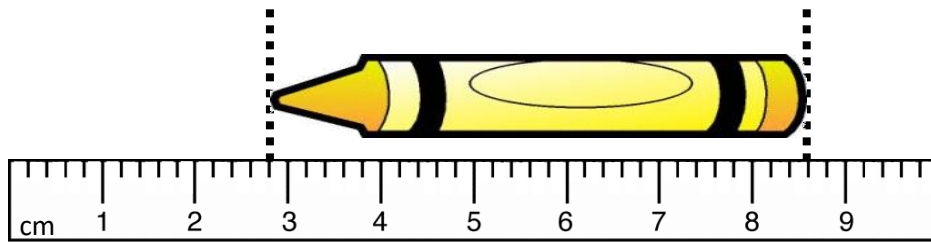
- a. 2018
- b. 2021
- c. 2025
- d. 2026



12. Martin packs 10 kg of sugar equally into 2500 bags. What is the mass of sugar in each bag?

- a. 4 grams
- b. 40 grams
- c. 250 grams
- d. 2.5 kg

13. Work out the length of the pencil in the figure below.



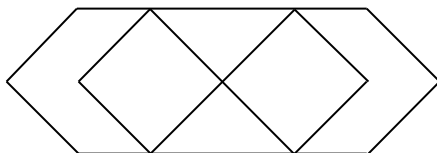
a. 2.8 cm

b. 5.8 cm

c. 8.3 cm

d. 8.6 cm

14. How many **hexagons** can you see in the figure below?



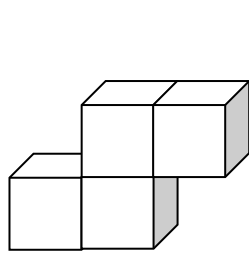
a. 3

b. 6

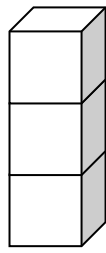
c. 8

d. 12

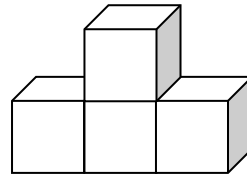
15. The four models below are made up of identical cubes which are glued together.



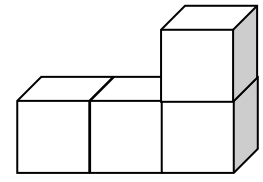
model A



model B

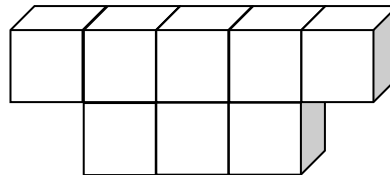


model C



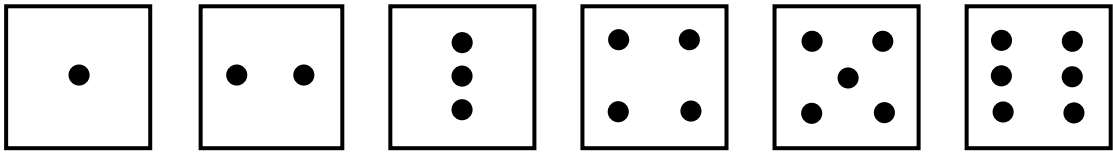
model D

Which two models can be joined together to make up the model below?



- a. model A and model B
- b. model C and model D
- c. model B and model C
- d. model A and model C

16. How many of the six faces of a die (as shown below) have **more than 2 lines of symmetry**?



- a. 0
- b. 1
- c. 3
- d. 4









-
17. Emma is facing **East**.
Then, she turns **5 right angles in anticlockwise** direction,
followed by $2\frac{1}{2}$ right angles in a **clockwise** direction.
What direction is she facing now?



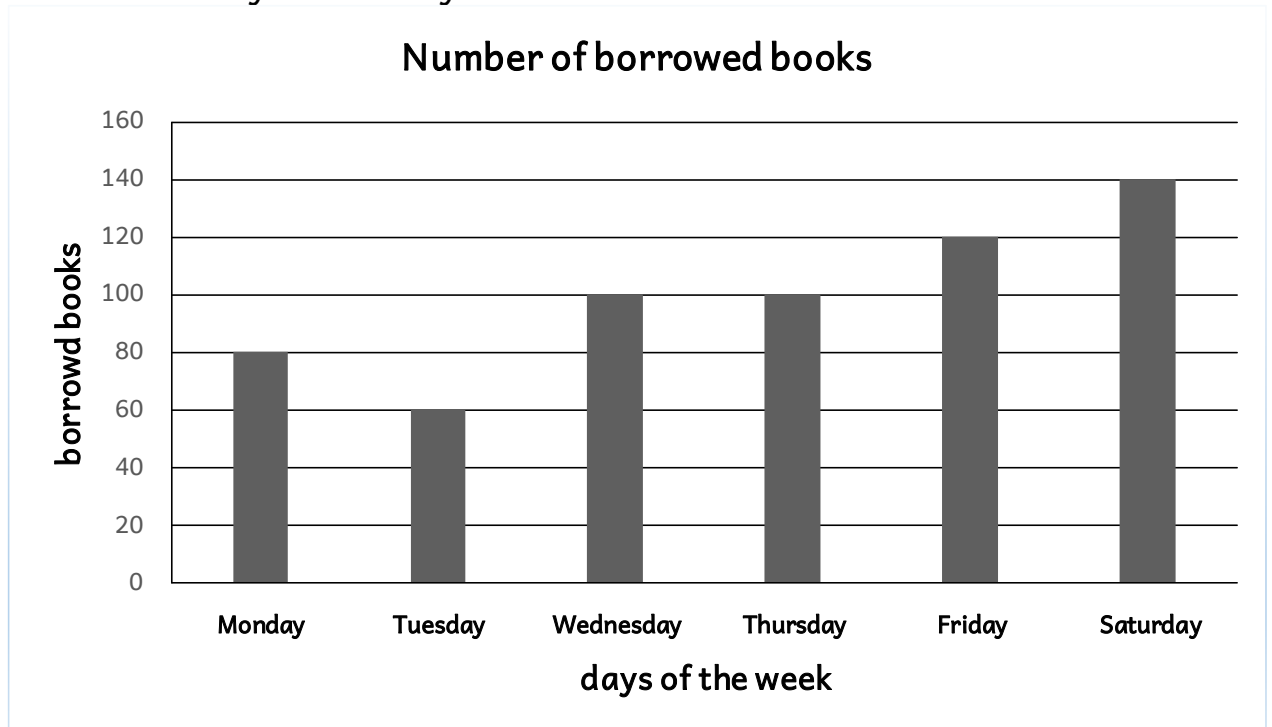
- a. NE
- b. SE
- c. NW
- d. SW

18. Look carefully at the pattern below.
Which are the 99th and 100th symbol in the pattern?



- a.  
- b.  
- c.  
- d.  

19. The bar chart below shows the number of books borrowed from the local library in a particular week.
On Sunday the library is closed.



A fifth ($\frac{1}{5}$) of the total number of books borrowed during this particular week were borrowed on:

- a. Tuesday
- b. Thursday
- c. Friday
- d. Saturday

Section B

Show your working.

Each question carries 3 points.

20. Sam makes a pattern using matchsticks.

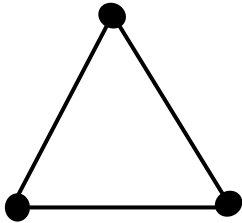


Figure 1

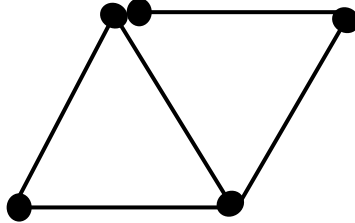


Figure 2

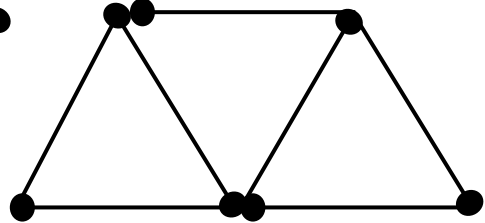
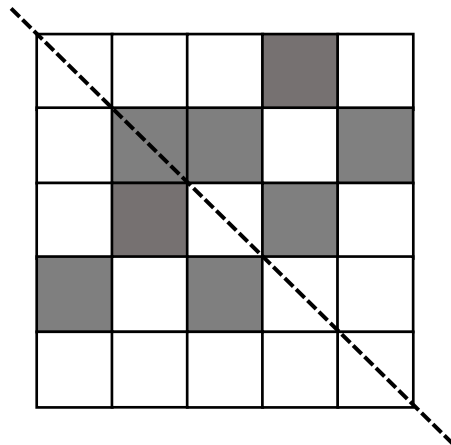


Figure 3

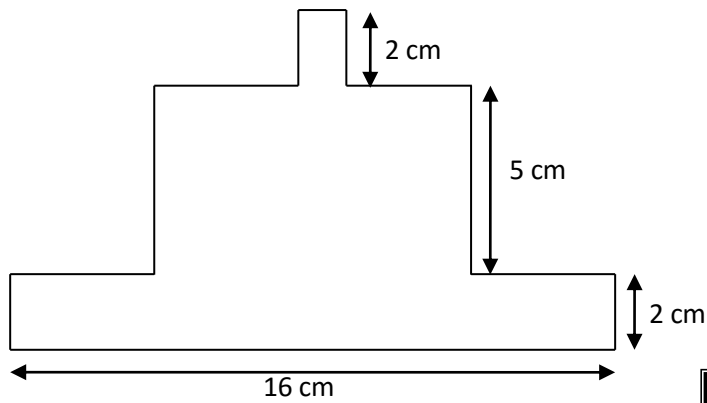
How many matchsticks in Figure 25?

| |
|-------------|
| matchsticks |
|-------------|

21. The dotted line in the figure below is a line of symmetry.
Shade 4 more squares to make a symmetrical pattern.



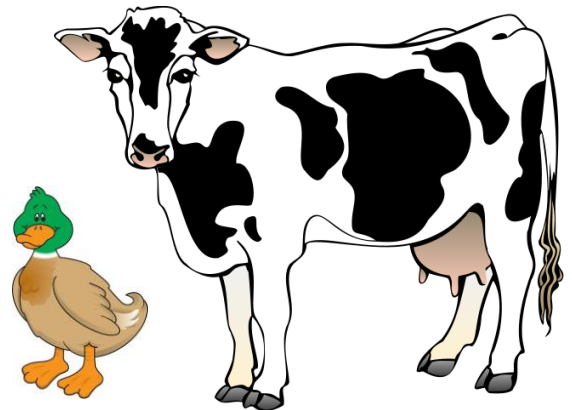
22. What is the **perimeter** of this shape?



| |
|----|
| cm |
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23. On a farm there were some **ducks** and some **cows**.
Altogether there were **10 heads** and **26 feet**.

How many **ducks** were there?



| |
|-------|
| ducks |
|-------|

End of test