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HIGH 5
The Junior Mathematicians Challenge
Final Test
11th April 2018



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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WORKING TIME	
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to be filled in by invigilator



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 **smallest fraction**?

a. $\frac{2}{3}$

b. $\frac{4}{7}$

c. $\frac{1}{2}$

d. $\frac{5}{9}$

2. **1204 _** is a **5-digit number** which is **divisible by 9**.

Which is the **missing digit** in this 5-digit number?

a. 1

b. 2

c. 3

d. 4

3. $\frac{4}{5}$ of \triangle is equal to 60.

Work out the **value** of \triangle .

a. 48

b. 60

c. 75

d. 80

4. The **sum of three different square numbers** is 70.
What is the **difference between the two biggest of these three numbers**?

a. 11

b. 13

c. 15

d. 60

5. Balloons are grouped in **bunches of 6**.
Jack has **56 balloons**.
How many **more balloons** does Jack need
to have **equal bunches**?



a. 2

b. 4

c. 6

d. 10

6. What is **half of $2 \cdot 1$** ?

a. $1 \cdot 02$

b. $1 \cdot 05$

c. $1 \cdot 1$

d. $1 \cdot 5$

7. How many of the integers (whole numbers) from **1 to 101** are **divisible by either 5 or 3, or both?**

a. 47

b. 50

c. 53

d. 60

8. Karla travelled from Malta to Rome in Italy by plane.
The plane landed at Rome's airport at **01:15** on Sunday 8th April.
The flight was **1 hour 25 minutes long**.
Work out the **departure time** on Saturday 7th April from Malta airport.

a. 11:50

b. 11:55

c. 23:50

d. 23:55

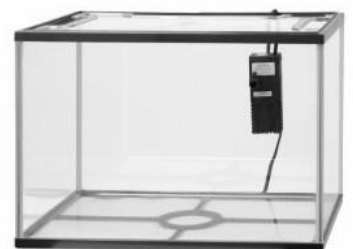
9. A bucket contains **9 litres of water**.
Two thirds of the water in the bucket is **poured into a 24-litre container** which is **already half filled with water**.
What **fraction of the container** is filled with water at the end?

a. $\frac{3}{4}$

b. $\frac{3}{5}$

c. $\frac{2}{3}$

d. $\frac{1}{3}$



10. Today is **Wednesday**. **61 days more**, it will be:

- a. Sunday
- b. Monday
- c. Tuesday
- d. Wednesday

11. The **sum of ages of three friends Bertu, Lino, and George is 171 years.**

Bertu is one year older than Lino.

Lino is one year older than George.


How old is the George?

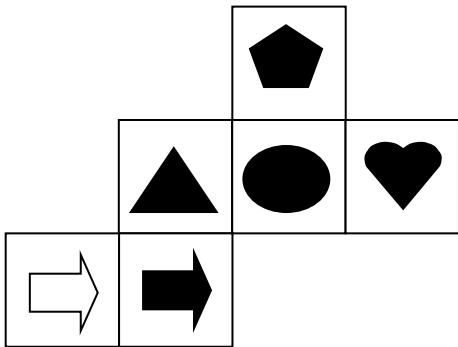
- a. 54 years
- b. 55 years
- c. 56 years
- d. 57 years







12. Which of the following is the same as **4050 centimetres**?

- a. 4•05 m
- b. 4•5 m
- c. 40•50 m
- d. 405 m

13. Hannah folded this net to make a **cube**.
Which **shape** is **opposite** the  when the net is folded?



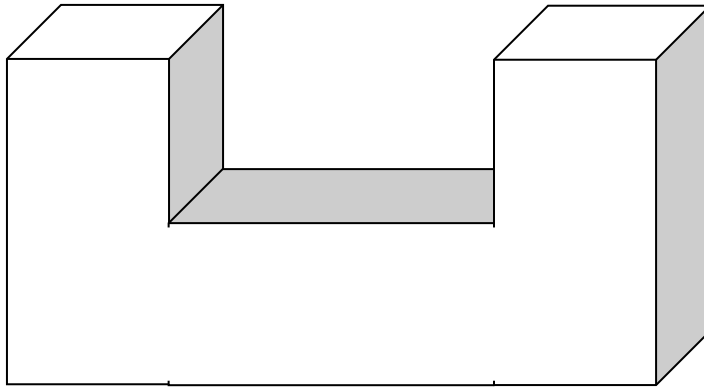
- a. 
- b. 
- c. 
- d. 

14. Sara and Sam shared one packet of sweets.
Sara ate **one third** of the sweets and **two more**.
Sam ate **one half** of the sweets and the **remaining two sweets**.
How many **sweets** did Sara and Sam eat in **total**?

- a. 24 sweets
- b. 12 sweets
- c. 9 sweets
- d. We can't tell.

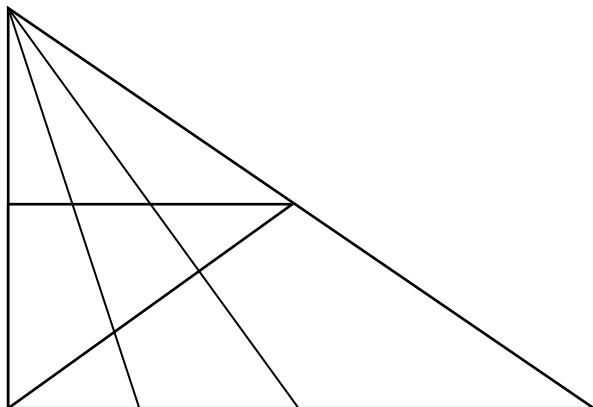


15. This 3-d shape is made by joining three cuboids.
How many **faces** does this 3-d shape have?



- a. 6 faces
- b. 8 faces
- c. 10 faces
- d. 20 faces

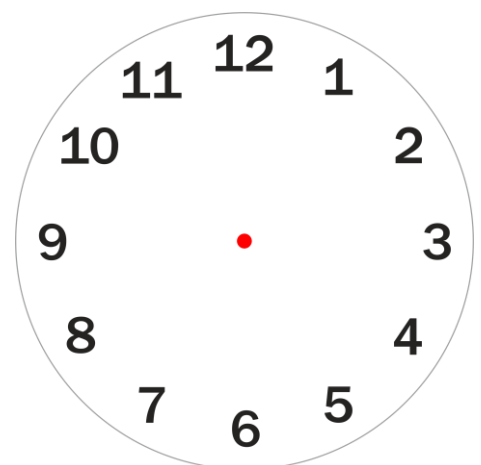
16. How many **triangles** are there in this diagram?



- a. 8 triangles
- b. 18 triangles
- c. 20 triangles
- d. 24 triangles

17. Work out the **size of the angle** between the **minute hand** and the **hour hand** when it is **quarter past 5 (05:15)**.

- a. 60°
- b. 67.5°
- c. 75°
- d. 80°



18. The **first number (1st)** in the sequence below is **8**.
The **second number (2nd)** is **11**.
Look carefully at the sequence below.
What is the number in the **eightieth (80th)** position?

8, 11, 14, 17, 20, 23, ...

- a. 237
- b. 240
- c. 245
- d. 248

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19. To buy **one song** from the *Online Music Shop* costs **€1•29**.
To buy **four songs** costs **€3•50**.
What is the **maximum number of songs** that Petra can buy from the *Online Music Shop* with a **€10**?

- a. 10 songs
- b. 9 songs
- c. 8 songs
- d. 6 songs

Section B

Show your working.

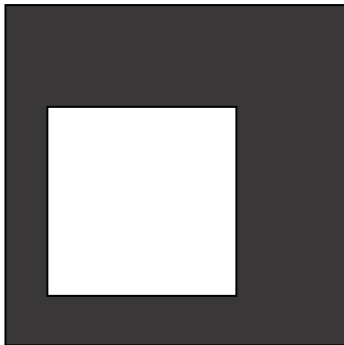
Each question carries 3 points.

20. **A** and **B** are two different digits.
AB is a two-digit number.
BA is another two-digit number.
If you **subtract BA** from **AB** you will get **63**.
Work out **AA + BB**

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21. The table below shows the time taken by four girls in a race.
Who is the **fastest**?

Name of Girls	Time taken in seconds
Cassidy	38
Jade	40
Katrina	42
Michaela	36

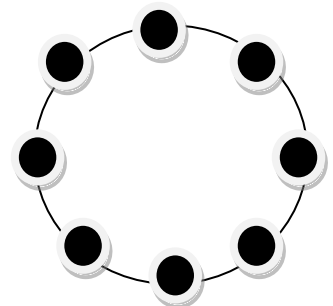
22. The figure below is made up of **two squares**.
The **perimeter of the smaller square** is 20 cm.
The **area of the shaded part [black part]** is 56 cm².
Work out the **length of one side of the bigger square**.



not actual size

_____ cm long

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23. **Eight girls** are standing in a circle.
Each girl shakes hands with every other girl except the two girls standing next to her.
How many **different handshakes** are possible?



handshakes

End of test