Junior Maths Mastery Challenge 2024

Paper A

Student Name: _____

Student No.: _____
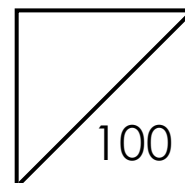
DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED.

Read the instructions on the **answer sheet** and fill in your **name**, **school** and **other information**.

Record your answers in your **answer sheet**.

You have **1 hour 30 minutes** to answer all 25 questions.

Junior Maths Mastery Challenge (2024)

Paper A

100

Section A (70 marks)

Questions 1 to 10 carry 3 marks each.

1. When two numbers are added, the result is 88.
   One number is 22 more than the other.
   What is the greater number?
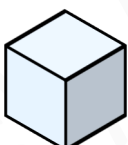
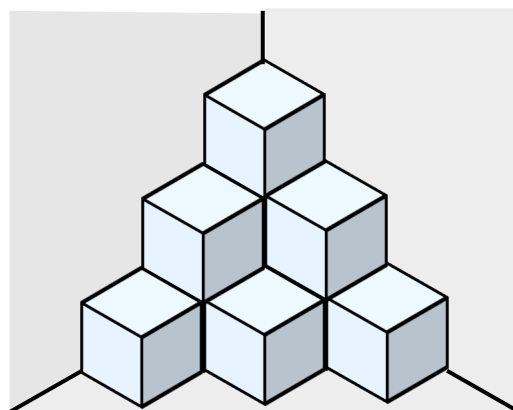   (A) 22   (B) 33   (C) 44

   (D) 55   (E) 66

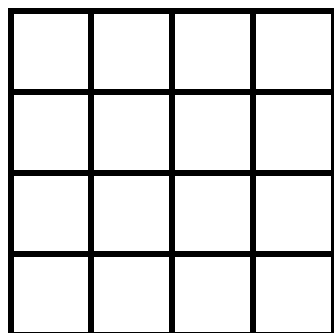2. How many is the solid made up of?

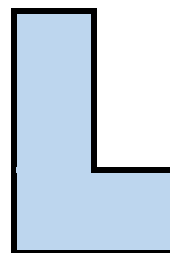   (A) 6   (B) 9   (C) 10

   (D) 11   (E) None of the above

3. Look at the grid and figure below.
   Find the least number of figures needed to cover the grid completely.

Grid   Figure

(A) 3   (B) 4   (C) 5

(D) 6   (E) 7

4. Find the missing numbers in the number pattern.

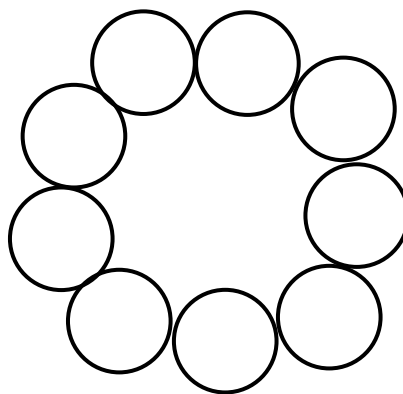4, 5, 7, 10, 14, __P__, 25, __Q__, 40, 49, 59, …

(A) P = 19, Q = 29   (B) P = 20, Q = 30

(C) P = 21, Q = 35   (D) P = 20, Q = 33

(E) P = 19, Q = 32

5. What is the least number of colours needed to colour the beads such that the beads next to each other are of different colour?

(A) 2   (B) 3   (C) 4

(D) 5   (E) None of the above

6. Tom has 4 10¢ coins, 3 20¢ coins and 2 50¢ coins.
   He wants to buy an eraser that costs 80¢.
   In how many ways can he pay the exact amount
   for the eraser?

   (A) 4   (B) 5   (C) 6

   (D) 7   (E) 8

7. There are 31 days in March.
   If 6th March is a Thursday, what day is 29 March?

   (A) Monday   (B) Tuesday   (C) Friday

   (D) Saturday   (E) Sunday

8. There are 20 children in a queue.
Jane is 7th from the front.
Sam is 5th from the back.
How many children are between Sam and Jane
in the queue?

(A) 6   (B) 8   (C) 9

(D) 10   (E) None of the above

9. Tom places some coins on a square.
He places a coin on each vertex.
There are 5 coins on each side of the square.
How many coins does he use?

coin
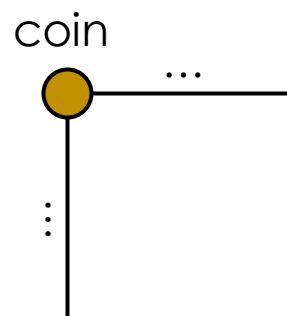
(A) 12   (B) 15   (C) 16

(D) 20   (E) 24

10. Ken traces the lines of the figures below. Which figure(s) can he trace along the lines without drawing over any line twice and without lifting his pencil?
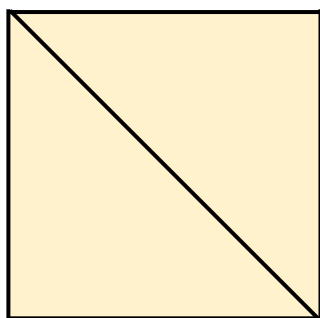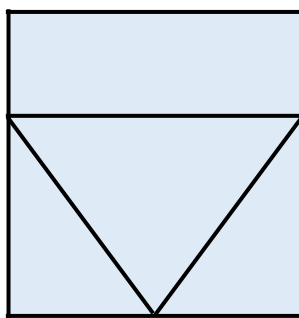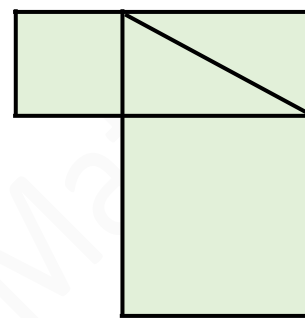

Figure A   Figure B   Figure C

(A) Figure A only

(B) Figures A and B only

(C) Figures A and C only

(D) Figures B and C only

(E) All of the figures
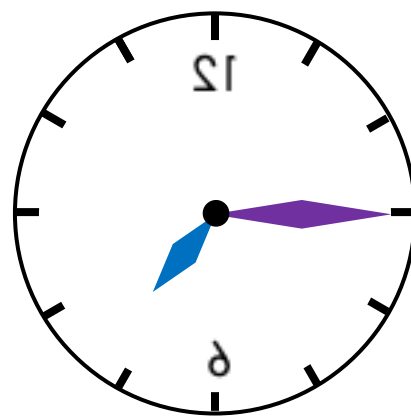
Questions 11 to 20 carry 4 marks each.

11. Paul writes the following on a board.

    1 2 3 4 5 6 7 8 9 10 11 … 45 46 47 48 49

    How many times does the digit '3' appear?

    (A) 11   (B) 12   (C) 13

    (D) 14   (E) 15

12. The diagram shows the reflection of a clock.
    What is the time half an hour later?

    (A) 4:45   (B) 5:15   (C) 6:45

    (D) 7:45   (E) 8:15

13. How many ways are there to put 18 apples into 3 baskets so that the number of apples in each basket is an even number?

(A) 6   (B) 7   (C) 8
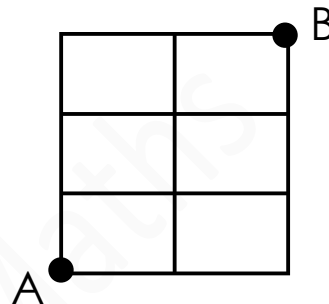
(D) 9   (E) 10

14. There are 8 bags of beads.
The number of beads in each bag is shown.
What is the least number of bags Maria needs to open to get exactly 100 beads?

Bags: 43, 56, 41, 12, 34, 27, 25, 18

(A) 2   (B) 3   (C) 4

(D) 5   (E) None of the above

15. How many ways are there to walk from Point A to Point B using the directions ⟶ and ↑ only?

(A) 8   (B) 9   (C) 10
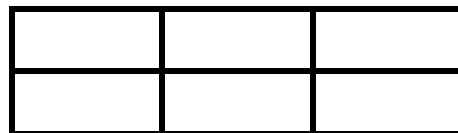
(D) 11   (E) 12

16. How many rectangles are there in the figure?

(A) 12 (B) 14 (C) 16

(D) 18 (E) 20

17. Study the following equations.

$$2 ✖ 3 = 10$$

$$4 ✖ 5 = 18$$

$$6 ✖ 7 = 26$$
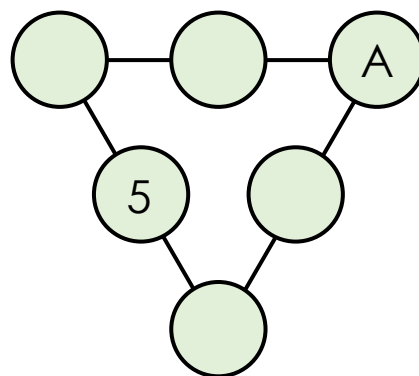
Find the value of $5 ✖ 9$.

(A) 14   (B) 28   (C) 40

(D) 45   (E) 59

18. Fill in each circle with a number from 4 to 9 such that the 3 numbers along each line add up to 21. What number does the letter A stand for?
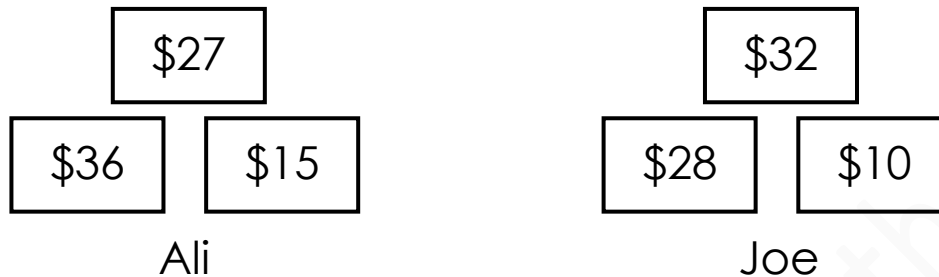

(A) 4   (B) 6   (C) 7

(D) 8   (E) None of the above

19. Ali and Joe each won three different amounts of prize money in a game.

$27

$36 $15

Ali

$32

$28 $10

Joe

They shared the prize money equally by switching one amount with each other.
Which amount from Ali was switched with an amount from Joe?

(A) $15 from Ali with $10 from Joe
(B) $27 from Ali with $10 from Joe
(C) $27 from Ali with $32 from Joe
(D) $36 from Ali with $28 from Joe
(E) $36 from Ali with $32 from Joe

20. A teacher asks three boys if they can cycle.

Tom: I can cycle.
Peter: Tom is lying.
Bob: Peter can cycle.

Only one boy is lying and only one boy can cycle. Which of the following statements is **false**?

(A) Tom cannot cycle.
(B) Peter is saying the truth.
(C) Bob cannot cycle.
(D) Peter cannot cycle.
(E) None of the above

Section B (30 marks)
Questions 21 to 25 carry 6 marks each.

21. John wants to cut the pizza below.
    What is the maximum number of slices he can get by making 4 straight cuts?
    Each slice does not have to be equal in size.

22. Alice is in a dark room.
    Her drawer has 4 blue socks, 6 white socks and
    8 black socks.
    What is the least number of socks she must take
    out from the drawer to make sure that there is at
    least 1 pair of socks of each colour?

23. In the following, letters A, B and C stand for different digits.

$$\begin{array}{ccc} & A & B \\ + & A & B \\ \hline & C & A \end{array}$$
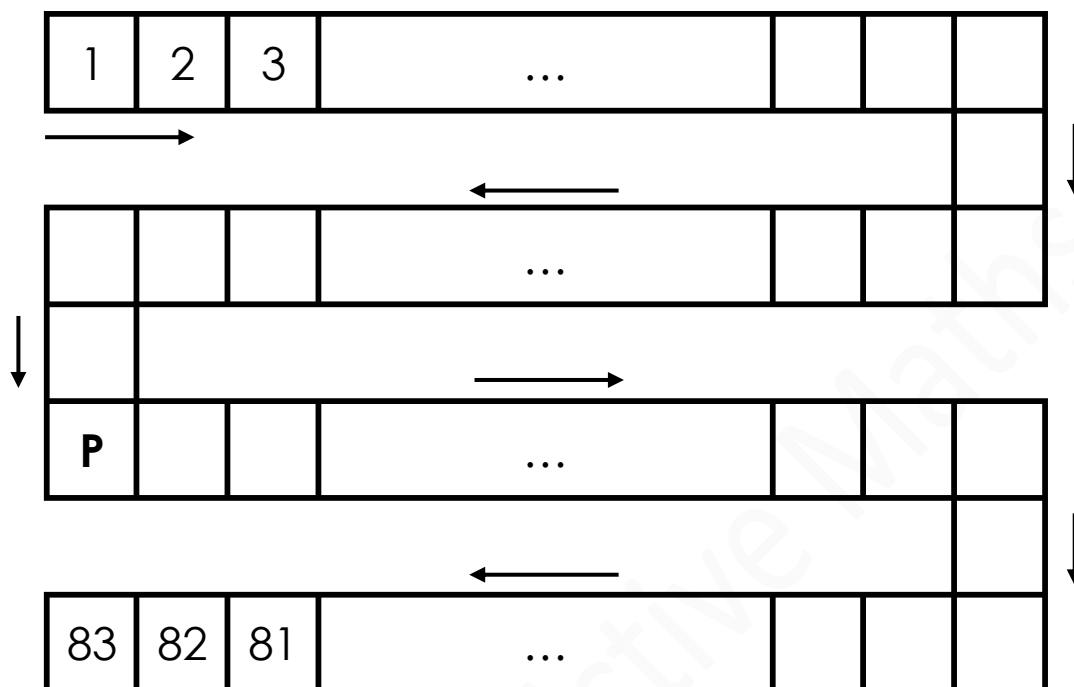
What is the greatest 2-digit number CA stands for?

24. These pairs of numbers are mirror images:

- 12 and 21
- 24 and 42
- 36 and 63

How many such pairs of numbers give the result of 77 when added together?

25. 83 numbers are arranged as shown below.

What number does the letter P represent?

END OF PAPER

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