



## Year 7 (11+) Entrance and Scholarship Examination

Sample Paper

### Maths

Name: .....

Time: 45 minutes

#### Instructions:

Section A contains 20 multiple-choice questions.

Answer each question by drawing a circle around the correct answer like this:

A	<b>B</b>	C	D
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Use the space on the paper for working out.

Section B contains 5 problem-solving questions.

Attempt all questions and use the space on the paper to clearly show your working out. There is a space at the bottom of each question for you to write your final answer.

**You may not use a calculator.** Rulers are permitted, but any **other measuring devices (e.g. protractors) are not allowed.** All diagrams are not drawn to scale, so it will not help you to measure them yourself as part of your workings.



## Section A : Multiple Choice Questions

1.	<i>What is <math>8765 + 4321</math>?</i>			
	(A) 12,086	(B) 12,186	(C) 13,086	(D) 13,096

2.	<i>What is the value of the digit 2 in the number 123,456?</i>	
	(A) Twenty thousand	(B) Two million
	(C) Two hundred thousand	(D) Two thousand

3.	<i>What is the value of <math>\frac{2026}{2+0+2+6}</math> ?</i>			
	(A) 202	(B) 202.6	(C) 220.6	(D) 226



4. The first term of a sequence is 5.  
The next term of the sequence is found by adding four to the previous term.



5, 9, 13, 17, \_\_, \_\_, ...

Which of these numbers will **not** appear in the sequence?

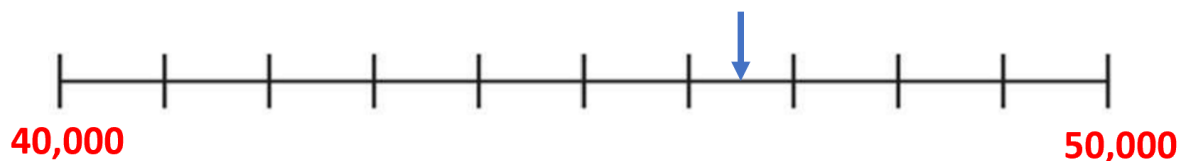
(A) 41

(B) 77

(C) 97

(D) 112

5. What number is shown by this arrow?



(A) 40,065

(B) 40,650

(C) 46,050

(D) 46,500

6. Here is a repeating pattern of shapes.



What would be the 100<sup>th</sup> shape in this pattern?

(A)



(B)



(C)



(D)





7. A train arrives in Glasgow at **2.03pm** having left London **265 minutes earlier**.

*At what time did the train leave London?*

(A) **9.35am**

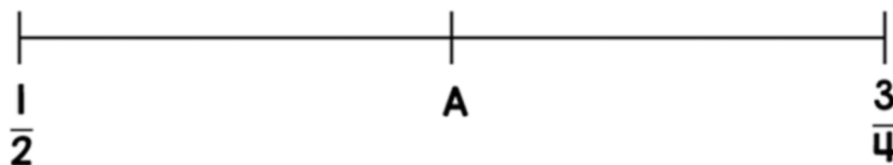
(B) **9.38am**

(C) **9.48am**

(D) **10.38am**

8. The fraction A is **halfway** along this number line.

*What is the value of A?*



(A)  $\frac{2}{3}$

(B)  $\frac{3}{5}$

(C)  $\frac{4}{5}$

(D)  $\frac{5}{8}$



9.	<i>Which of these calculations has an <b>incorrect</b> answer?</i>			
	(A) $940 \div 4 = 235$	(B) $1180 \div 5 = 236$	(C) $1428 \div 6 = 237$	(D) $1666 \div 7 = 238$

10.	Amelie is comparing the number of house sparrows and tree sparrows she has seen in her garden.  Currently, the ratio of house sparrows to tree sparrows is <b>5:8</b> .  She has seen <b>six more</b> tree sparrows than house sparrows.  <i>How many sparrows has Amelie seen altogether?</i>			
	(A) <b>13</b>	(B) <b>19</b>	(C) <b>26</b>	(D) <b>78</b>



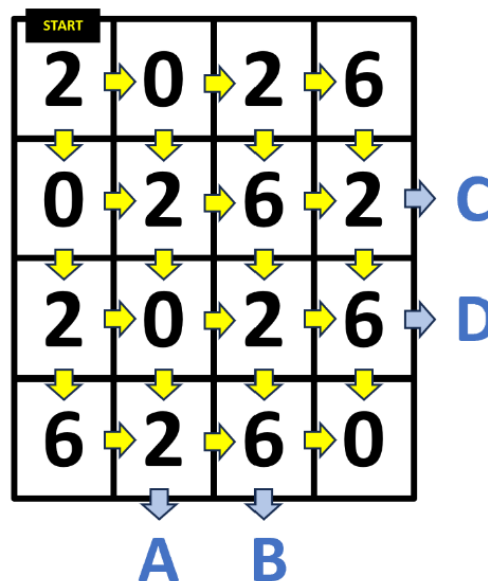
11. Here is a challenge maze.

Starting at the top left corner, you may only move from one square to another by moving down or to the right.

Your aim is to **reach one of the exits (A, B, C or D) without passing through the number 2026.**

If you pass through a 2, 0, 2 and 6 (in that order), at any point in your journey, you have failed the challenge.

*Which of the four labelled exits is the only one by which you can complete the challenge?*



A

B

C

D

12. Eltham Eagles FC have opened a new stand in their stadium.

The stand has **15 blocks** of seats.

Each block has **13 rows**, and each row has **24 seats**.

*How many seats are there in the stand altogether?*

(A) 1,170


(B) 4,360

(C) 4,680

(D) 4,780



<b>13.</b>	<i>Which of these calculations has a different answer to the other three?</i>		
	(A) <b><math>\frac{6}{11}</math> of 66</b>	(B) <b><math>\frac{3}{7}</math> of 84</b>	
	(C) <b>4 % of 900</b>	(D) <b>25 % of 140</b>	

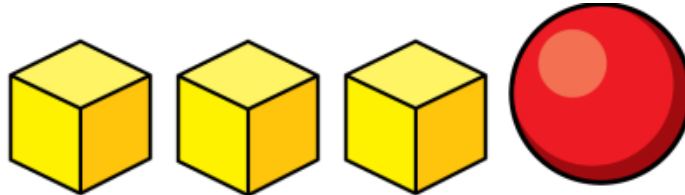
<b>14.</b>	<p>Amy earns <b>£8.50 per hour</b> by washing cars for her neighbours.</p> <p>This weekend, she spent <b>three hours</b> washing cars on Saturday, and <b>2 ½ hours</b> on Sunday.</p> <p><i>How much money did she earn in total?</i></p>		
	(A) <b>£40.25</b>		



15. Three identical cubes and sphere have a total mass of **200g**.

The sphere's mass is **8g more than the cube's mass**.

*What is the mass of a single cube?*



(A) **42g**

(B) **48g**

(C) **50g**

(D) **64g**

16. Alex is holding a card with a number on it. When he finds **one third** of his number and then **adds 6**, he makes **one more than the double** of his number.

*What is his number?*

(A) **2**

(B) **3**

(C) **8**

(D) **10**



17. James uses the digit cards **2, 0, 2 and 6** to make four-digit numbers. (NB the 0 card cannot be used as a thousands digit.) He writes a list of every possible number he could make.



*How many of James's numbers are multiples of 4?*

(A) none

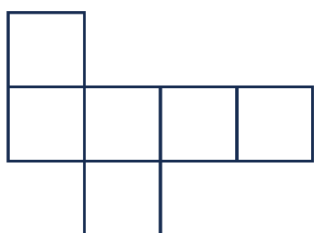
(B) one

(C) two

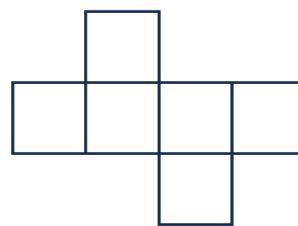
(D) three

18. *Which of these shapes could **not** be a net for a cube?*

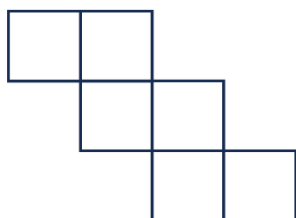
(A)



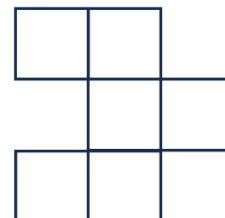
(B)



(C)



(D)





19. Ben creates the following multiplication calculation:

$$\mathbf{M} \mathbf{E} \times 4 = \mathbf{B} \mathbf{E} \mathbf{N}$$

The letters **M**, **E**, **B** and **N** each represent a **different digit greater than 0**.

Ben tries out different digits for M, E, B and N to see in how many ways he can make this calculation be mathematically correct.

*How many mathematically correct versions of Ben's calculation are there?*

(A) none

(B) one

(C) two

(D) three



**20.** In the Mottingham Mega Maths Quiz there are **20** questions, and contestants score:  
**3** points for a correct answer;  
**- 1** point for an incorrect answer;  
**0** points if you “pass” on a question – meaning that you don’t answer it at all.

Arianna scored **49** points in the quiz.

*How many questions did Arianna “pass” on?*

(A) **0**

(B) **1**

(C) **2**

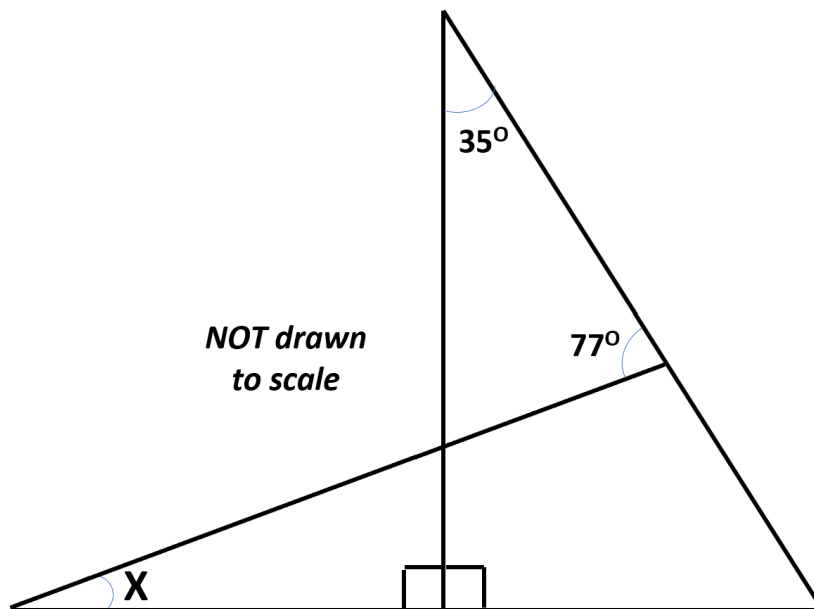
(D) **3**



**Section B : Problem-Solving Questions.**

**Each question has a space for you to show your workings and then a space for you to write your final answer.**

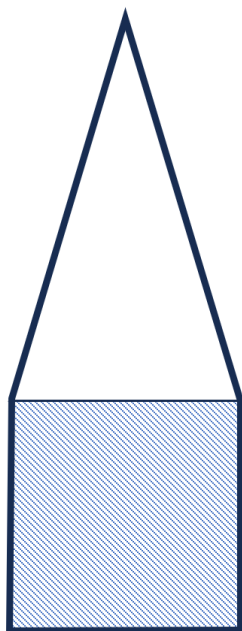
**21.** *What is the size of angle X?*



**Answer :**



22.



***NOT drawn  
to scale***

This pentagon is made from a square and an isosceles triangle.

The square and the triangle have **the same perimeter**.

The area of the square is **144cm<sup>2</sup>**.

*What is the perimeter of the pentagon?*

***Answer :***



23. Michael has **£23**.

Lola has **£71**.

They are each paid the same amount of money for helping their neighbour with some gardening.

Lola now has **twice as much money as Michael**.

*How much money were they each paid for doing the gardening?*



**Answer :**



24. Poppy takes the digit cards 1 to 6 and creates an addition using three fractions as shown below:

$$\frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square} = ?$$

She uses the odd digits (1, 3 and 5) as the numerators.

She uses the even digits (2, 4 and 6) as the denominators.

*What is the smallest total that Poppy can make? Give your answer as a fraction.*

**Answer :**



**25.** Elliot writes down the one digit number **D**. He then combines this with a new tens digit to make the two-digit number **CD**. He then includes a hundreds digit to make the number **BCD**, and then a thousands digit to make the number **ABCD**.

Elliot then notices that:

$$\mathbf{ABCD + BCD + CD + D = 2026}$$

*What is  $A + B + C + D$ ?*

***Answer :***

**END OF PAPER**