ELTHAM COLLEGE

Year 7 (11+) Entrance and Scholarship Examination

September 2022 Entry

Maths

Name: …….

Time: 45 minutes

Instructions:

You may not use a calculator.

Section A contains 20 multiple choice questions.

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

A	B	C	D

Use the space on the paper for working out.

Section B contains 3 problem-solving questions.

Attempt all questions and use the space on the paper to clearly show your working out.

SECTION A: MULTIPLE CHOICE QUESTIONS

This section contains 20 questions.

1.	Calculate the sum of eight thousand five hundred and eighty-two, and four thousand nine hundred and thirty-three.			
	A. 12,415	**B. 13,415**	**C. 13,515**	**D. 13,615**
	Working out:			
2.	What is the value of $\frac{2022}{2+0+2+2}$			
	A. 337	**B. 347**	**C. 358**	**D. 3033**
	Working out:			

3.	The game of *Yahtzee* is played using five regular dice. In total, how many spots are there on five regular dice? 			
	A. 75	**B. 90**	**C. 105**	**D. 120**
	Working out:			
4.	The slow train from London to Edinburgh takes 5 hours and 35 minutes. If the train arrives in Edinburgh at 3:20pm, what time did it leave London?			
	A. 9:45 am	**B. 10:15 am**	**C. 10:45 am**	**D. 8:55 pm**
	Working out:			

5.	Which of these quantities is the largest?			
	A. $\frac{1}{2}$ of 45	**B. $\frac{1}{3}$ of 66**	**C. $\frac{3}{4}$ of 28**	**D. 10% of 215**
	Working out:			
6.	Neville works at The Crusty Pi Cafe . He earns £6.50 per hour on Saturday and £8.50 per hour on Sunday. Last weekend he worked for 3 hours on Saturday and 2½ hours on Sunday. How much money did Neville earn over the weekend?			
	A. £38.25	**B. £40.75**	**C. £41.00**	**D. £41.75**
	Working out:			

7. What is the angle between the hands when the time is four o'clock?



A. 100 degrees	**B. 120 degrees**	**C. 135 degrees**	**D. 150 degrees**

Working out:

8. The first term of a sequence is 2

The next term of the sequence is found by multiplying the previous term by three and then adding two.

What is the fifth term of the sequence?

2, _ , _ , _ , ?

A. 216	**B. 224**	**C. 225**	**D. 242**

Working out:

9. Which of these quantities is the largest?

A. 2^5	**B.** 3^3	**C.** $2^2 \times 3^2$	**D.** $2^3 \times 5$

Working out:

10. Here are four number cards.

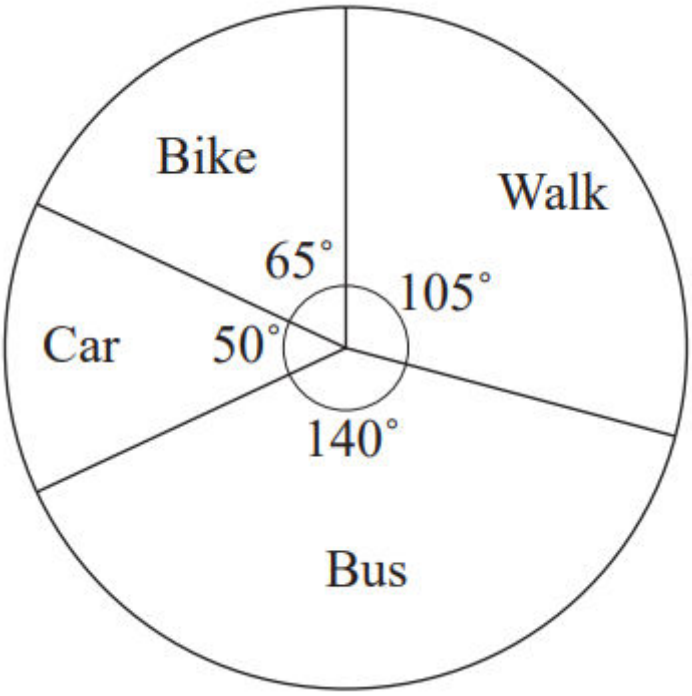


These can be used to make different four-digit numbers.

What is the difference between the largest possible four-digit number and the smallest possible four-digit number?

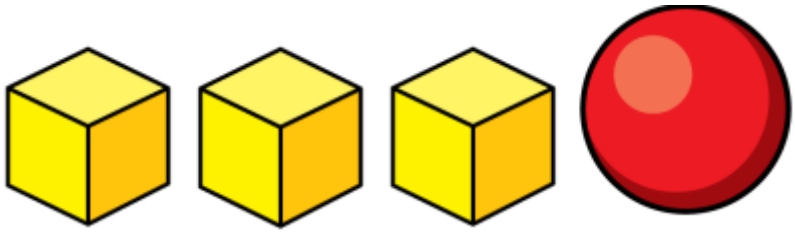
A. 5372	**B. 7263**	**C. 7841**	**D. 8714**

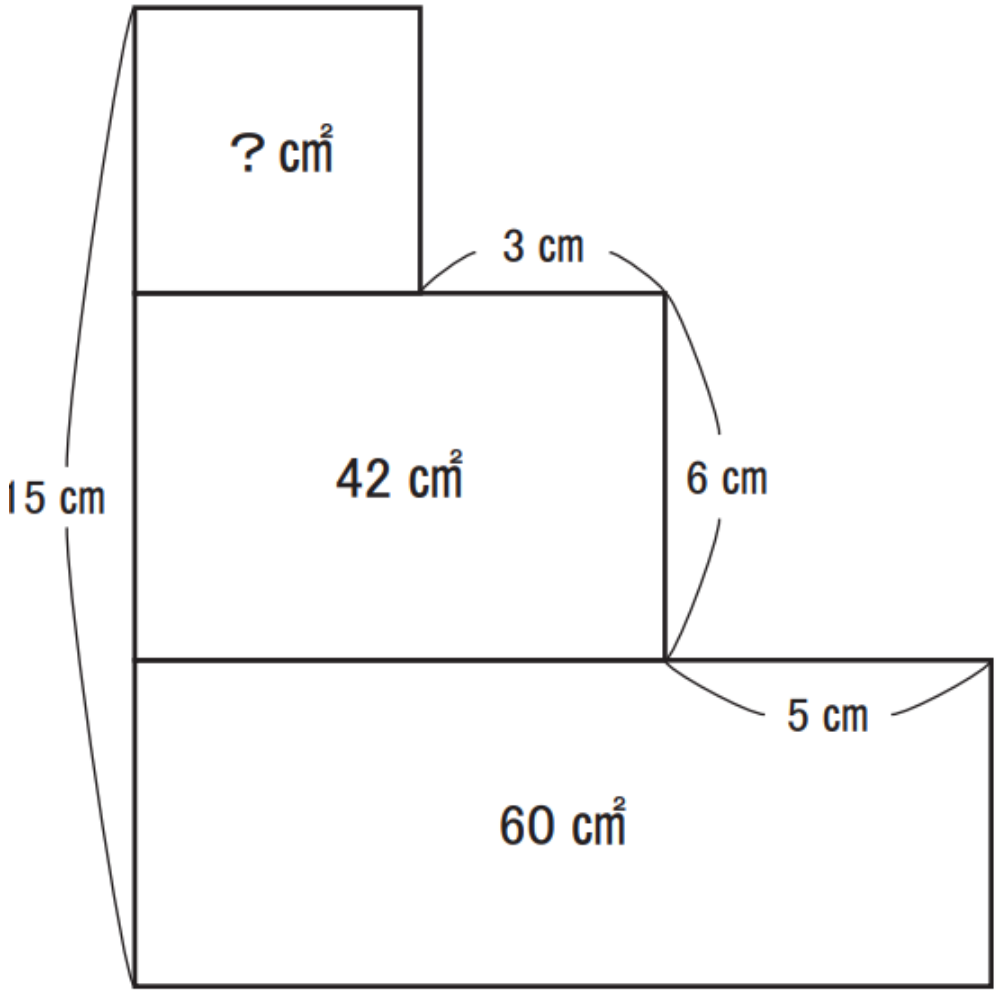
Working out:

11.	This pie chart shows how a group of children travel to school  There are 13 children who go to school by bike. How many children take the bus to school?			
	A. 14	**B. 21**	**C. 28**	**D. 40**
	Working out:			

12.	George takes five exams and finds that his average score is 60 marks. In his sixth and final exam, how many marks does he need to score to achieve an overall average of 65 marks?			
	A. 60	**B. 70**	**C. 80**	**D. 90**
	Working out:			
13.	Which of these calculations is incorrect?			
	A. 3 + 5 × 4 = 23		**B. 20 – 5 × 4 = 0**	
	C. 12 – 5 × 2 = 2		**D. 3 + 6 × 4 = 36**	
	Working out:			

14.	The fraction A is half-way along this number line.  What is the value of A ?			
	A. $\frac{2}{3}$	**B.** $\frac{3}{5}$	**C.** $\frac{4}{7}$	**D.** $\frac{5}{8}$
	Working out:			
15.	Amy makes a repeating pattern. What shape will be in the 2022nd position? 			
	A. 	**B.**	**C.** 	**D.** 
	Working out:			

16.	The mass of 3 identical cubes and 1 sphere is 140 g  The sphere is 32 g heavier than one of the cubes. What is the mass of one of the cubes?			
	A. 27	**B. 32**		
	C. 36	**D. 50**		
	Working out:			
17.	The price of a washing machine increases by $\frac{1}{3}$ The cost of the washing machine is now £284 How much did the washing machine cost before the increase?			
	A. 189	**B. 213**	**C. 254**	**D. More information is needed**
	Working out:			

18.	What is the area of the top shape? (all the shapes are rectangles)  			
	A. 16	**B. 18**	**C. 20**	**D. 24**
	Working out:			

19.	In a quiz there are 20 questions in a round A contestant scores +5 for each correct answer -3 for each incorrect answer -2 for each question left blank Lula takes the quiz answering 12 correctly, answering 5 incorrectly and leaving 3 blank. What is her final score?			
	A. 35	**B. 39**	**C. 45**	**D. 51**
	Working out:			

20. I need to buy four tins of *Fine's Baked Beans* for tea tonight. A quick online search reveals the following offers at three supermarkets:

TESTCO:

48P PER TIN

Costlow:

95p per tin

Buy one get one free!

Ridl:

54p for the 1st tin;

45p for each additional tin

Where should I shop to get the best deal?

A. Testco	B. Costlow	C. Ridl	D. The best price is at more than one store

Working out:

END OF SECTION A

MOVE STRAIGHT ONTO SECTION B

SECTION B: PROBLEM-SOLVING QUESTIONS

This section contains 3 questions.

Use the space on each page to clearly show your working out.

1.	Old Macdonald has a farm with pigs, ducks and chickens. He observes that the ratio of pigs to ducks is 2:3 and the ratio of ducks to chickens is 4:9 If he has 32 pigs, how many animals in total are there on Old MacDonald's farm?

2.	Milly and Billy are playing a guessing game. Milly thinks of a number between 1 and 1000 (inclusive) and Billy can either guess Milly's number or ask a "higher" or "lower" question, Milly will only answer "Yes" or "No". For example, if Milly was thinking of 142 the game might go *Billy: Is your number higher than 600?* *Milly: No!* *Billy: Is your number lower than 200?* *Milly: Yes!* *Billy: Is your number 23?* *Milly: No!* How many questions must Billy ask to be ***sure*** of guessing Milly's number?

3.	The mathematical symbol $\otimes$ has a special meaning as follows: $$a \otimes b = (a + b) \times (a - b)$$ For example $$6 \otimes 4 = (6 + 4) \times (6 - 4) = 20$$ (i) Calculate the value of $8 \otimes 5$ (ii) Work out the values of p and q if $$p \otimes q = 40$$

TEST COMPLETE

NOW GO BACK AND CHECK YOUR WORK CAREFULLY