ELTHAM COLLEGE

11+ ENTRANCE TEST 2020

MATHEMATICS

Time allowed: **45 minutes**

Name: ……..

Instructions:

The test is 45 minutes long.

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.

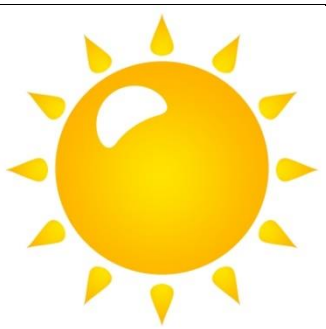
Section B contains 3 problem-solving questions.

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

SECTION A: MULTIPLE CHOICE QUESTIONS

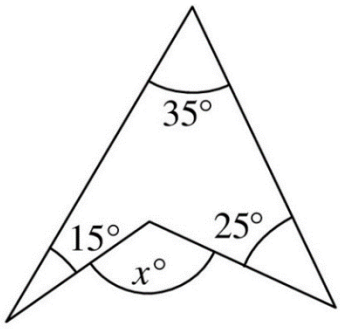
This section contains 20 questions.

1.	What is half of 1.01?			
	A. 0.55	**B. 0.505**	**C. 0.5005**	**D. 0.055**
	Working out:			
2.	What is 2002 × 5?			
	A. 10 010	**B. 100 010**	**C. 100 100**	**D. 10 100**
	Working out:			
3.	What is the remainder when 7 000 010 is divided by 7?			
	A. 1	**B. 2**	**C. 3**	**D. 4**
	Working out:			

4.	Today, the sun rose at Greenwich at 6:45am and will set 12 hours and 44 minutes later. At what time will the sun set at Greenwich today? 			
	A. 6:29pm	**B. 7:29pm**	**C. 7:39pm**	**D. 9:29pm**
	Working out:			
5.	What is the value of 6002 – 2006?			
	A. 3994	**B. 3996**	**C. 4004**	**D. 4006**
	Working out:			

6.	What number is twenty-one less than sixty thousand?			
	A. 59 979	**B. 59 981**	**C. 40 001**	**D. 39 000**
	Working out:			
7.	What is 2010 + (+2010) + (–2010) – (+2010) – (–2010)?			
	A. 0	**B. 2010**	**C. 4020**	**D. 6030**
	Working out:			

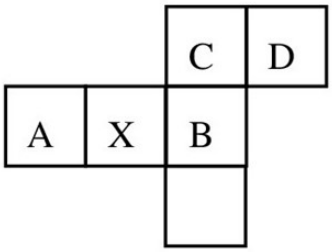
8. What is the value of x?



	A. 75	**B. 95**	**C. 105**	**D. 115**

Working out:

9. If the net shown is folded to make a cube, which letter is opposite X? Each option relates to the side labelled with the same letter.



	A.	**B.**	**C.**	**D.**

Working out:

10.	A transport company's vans each carry a maximum load of 12 tonnes. A firm needs to deliver 24 crates each weighing 5 tonnes. How many van loads will be needed to do this?			
	A. 9	**B. 10**	**C. 11**	**D. 12**
	Working out:			
11.	Tommy Thomas's tankard holds 480ml when it is one quarter empty. How much does it hold when it is one quarter full?			
	A. 120 ml	**B. 160 ml**	**C. 960 ml**	**D. 1440 ml**
	Working out:			

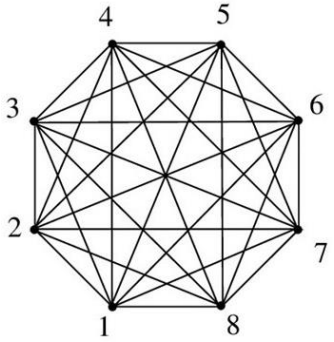
12.	In a group of 48 children, the ratio of boys to girls is 3:5. How many boys must join the group to make the ratio of boys to girls 5:3?			
	A. 40	**B. 32**	**C. 24**	**D. 8**
	Working out:			
13.	Which of the following statements is false?			
	A. $3 + 5 \times 4 = 23$		**B. $20 - 5 \times 4 = 0$**	
	C. $12 - 5 \times 2 = 2$		**D. $3 + 6 \times 4 = 36$**	
	Working out:			

14.	If the following fractions are ordered in increasing order of size, which one would be second?			
	A. $\frac{1}{2}$	**B.** $\frac{3}{5}$	**C.** $\frac{4}{7}$	**D.** $\frac{5}{9}$
	Working out:			
15.	In a sequence of numbers, each term after the first three terms is the sum of the previous three terms. The first three terms are -3, 0, 2. Which is the first term to exceed 100?			
	A. 12th term	**B. 13th term**	**C. 14th term**	**D. 15th term**
	Working out:			

16.

In the figure shown, each line joining two numbers is to be labelled with the sum of the two numbers that are at its end points.

How many of the labels are multiples of 3?

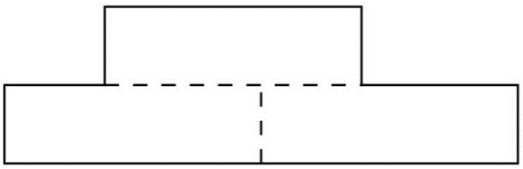


	A. 10	**B. 8**
	C. 7	**D. 6**

Working out:

17.

The shape to the right is made up of three rectangles, each measuring 3cm by 1cm.



What is the perimeter of the shape?

	A. 16cm	**B. 18cm**	**C. 24cm**	**D. More information needed**

Working out:

18.

Kiran writes down six different prime numbers, *p, q, r, s, t, u*, all less than 20, such that:

$p + q = r + s = t + u$.

What is the value of $p + q$?

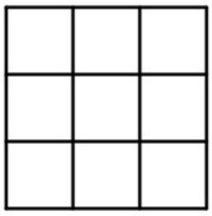
A. 16	**B. 18**	**C. 20**	**D. 24**

Working out:

19.

Each of the nine small squares in this grid can be coloured completely black or completely white.

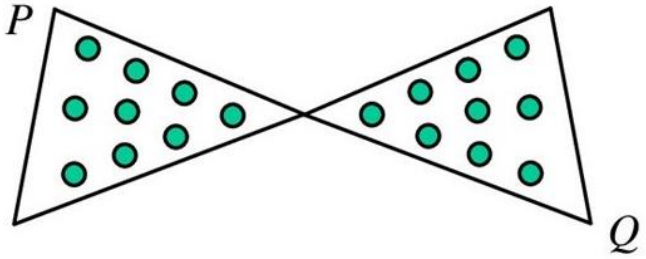
What is the largest number of squares that can be coloured black so that the design created has rotational symmetry of order 2, but no lines of symmetry?



A. 4	**B. 5**	**C. 6**	**D. 7**

Working out:

20.



A lady bird has landed at point P on Sam's bow-tie. If it travels only along the edges of the bow-tie, but cannot travel along one edge more than once, how many different ways are there for it to get from P to Q?

	A. 1	**B. 2**	**C. 3**	**D. 4**

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.

The two-digit by two-digit multiplication below has lots of gaps, but most of them can be filled in by logic (not by guesswork).

Which digit must go in the * position?

$$\begin{array}{rcc} & 4 & - \\ \times & - & - \\ \hline - & 8 & - \\ 8 & - & 0 \\ \hline - & - & 4 & * \\ \hline \end{array}$$

2.

A square is divided into three identical rectangles.

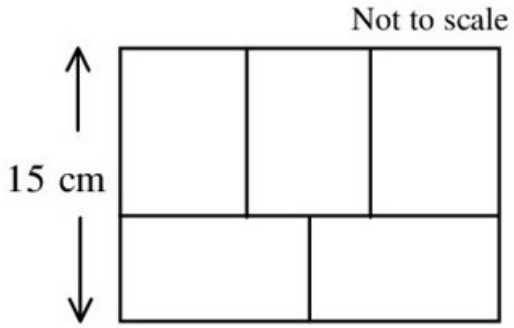
The middle rectangle is removed and replaced on the side of the original square to form an octagon as shown.

What is the ratio of the length of the perimeter of the square to the length of the perimeter of the octagon?

3.

Five identical rectangles fit together as shown.

What, in cm^2, is the total area which they cover?



TEST COMPLETE

NOW GO BACK AND CHECK YOUR WORK CAREFULLY