SEVENOAKS SCHOOL



YEAR 7 (11+) ENTRANCE EXAMINATION January 2022 for entry in September 2022

MATHEMATICS

Name:	 	 	
School:			

Time allowed: 1 hour

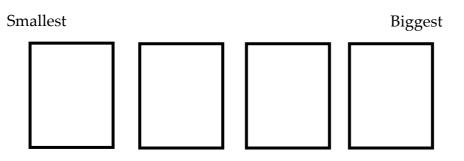
Equipment needed: Pen, pencil, eraser, ruler.

Information for candidates:

- 1. Calculators are NOT allowed.
- 2. Write your name and school on this sheet.
- 3. Write your answers on the question paper in the space provided.
- 4. There are 15 questions in this paper, try to answer all of them, but don't worry if you don't complete the paper. If you get stuck, just go on to the next question and if you have time at the end come back to the one(s) you left.
- 5. There are 60 marks in total available for this paper. Marks for each question are shown in square brackets [] after the question.
- 6. Show all your working. You may be awarded marks for correct working even if your final answer is incorrect, and a correct answer unsupported by correct working may not receive full marks.

1.	Calo	culate the following:	
	a)	$12 - 6 \div 2$	
			[1 mark]
	b)	13 - 4 + 5	
			[1 mark]
	c)	$(1-3)^2+6$	
			[2 mark]
2.		t gets to the bus stop at 9:38am – the next bus is at 10:02am. H it for the bus?	ow long does she have to
			minutes [1 mark]
3.	12 a 27 a 9 ar	e has a box of different coloured ribbons. are blue are yellow re red re green.	
	a)	How many ribbons does Julie have altogether?	
			[1 mark]
	b)	What fraction of the ribbons are blue? Give your answer in	its simplest form.
			[2 marks]
	c)	What percentage of the ribbons are green?	
			[2 marks]

4. Put the following fractions in **ascending** order: $\frac{1}{2}$, $\frac{4}{7}$, $\frac{10}{21}$, $\frac{1}{3}$



[2 marks]

- 5. James goes on a bike ride. He cycles at 15km/hour for 3 hours.
 - a) How far does James cycle?

_____ km [2 marks]

b) Jonathan cycles 20km in 90 minutes – is he faster or slower than James? Show your working.

_____ [2 marks]

- 6. Find *x* in the following equations:
 - a) 2x 5 = 13

_____ [2 marks]

b) 4x + 2 = -7 + x

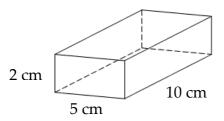
_____ [2 marks]

c) $\frac{1}{2}(x+1) = 11$

_____ [2 marks]

7. Farmer Freddie is checking on the animals in his field. He knows that the ratio of sheep to cows is 2:3. If he counts 50 sheep, how many cows should there be in the field? [2 marks] When he counts, Freddie realises that there are actually 100 cows in the field. What is b) the ratio of sheep to cows now? Give your answer in its simplest form. ____ [2 marks] 8. Draw all lines of reflectional symmetry on the below shape: [2 marks] Calculate the following, leaving your answers in their simplest form: 9. a) $\frac{1}{3} + 2\frac{1}{6}$ [2 marks] b) $3\frac{1}{5} \times 1\frac{1}{2}$ [2 marks] c) $1 - \frac{1}{4} \div \frac{1}{8}$

10. a) Peter is making chocolate bars in the shape of a cuboid, with dimensions as shown below. What is the volume of his chocolate bar?

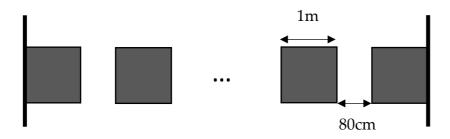


_____ cm³ [2 marks]

b) Peter decides to sell his chocolate bars at the local market. If he sells each one for 80p and his ingredients cost £50, what is the minimum number of bars he must sell to start making a profit?

_____ [3 marks]

11. In a school exam hall, the desks are set up, with 80cm between them, as shown below.



If each desk is 1m wide and the end desks are put against the wall, how many desks can you fit across a room that is 19m wide?

12. Paul and Ashley are trying to decide who is the best at bowling. Below are their scores for the past 3 games. Who has the best mean average score? Show all of your working.

Name	Game 1 Score	Game 2 Score	Game 3 Score
Paul	78	72	60
Ashley	53	56	116

	[3 marks]
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- 13. Find the next **2** numbers in the following sequences:
 - a) 2,5,8 ...



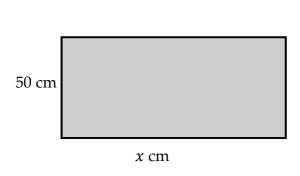
b) $0.3, \frac{2}{5}, \frac{1}{2}...$

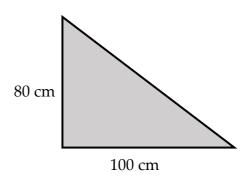


c) 12, 6, 3 ...

14	Alanna	has	three	flower	heds	in h	er oar	den
14.	Δ iailia	Has	unee	HOWEL	beus	111111	ei gai	uen.

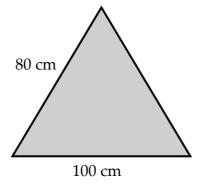
a) The first two, shown below, have the same area.





Find the value of x.

b) The third flower bed is also triangular, but with a sloping height of 80cm.



Does it have smaller, larger or the same area as the other flower beds? Give a reason for your answer.

15.	-	x and Tim created a new ger than or equal to x .	mathematical ru	le where $[x]$ is the sr	nallest whole number
	For	example, [5.3] = 6,	[0.9] = 1,	[-1.7] = -1.	
	Cal	culate the following:			
	a)	12.4 – [5.2]			
					[1 mark]
	b)	[4.8 ÷ [1.7]]			
					[2 marks]
	c)	Tim claims that $[a + b]$ Explain your answer.	= [a] + [b]. Gu	y says this is not alw	ays true. Who is correct?
					[2 marks]