CSSE

The Consortium of Selective Schools in Essex

MATHEMATICS PAPER FOR 2020 ENTRY – TEST 2

Name: _____

Candidate Number: _____

Primary School: _____

Boy or Girl: _____

Date of Birth: _____

Today's Date: _____

Test Taken At: _____

READ THE FOLLOWING CAREFULLY:

1. **Do not open this booklet until you are told to do so.**
2. You may work the questions out in your head, or by writing on the white area around the question.
3. **Work as quickly and as carefully as you can.**
4. Make any alterations to your answers **clearly.** You will not lose marks for crossing out.
5. You will have **60 minutes** to do the test. If you find you cannot do a question, **do not waste time on it but go on to the next one.**
6. **Once the test has begun, you should not ask about questions in the test.**
7. **The use of electronic calculators of any description (including calculator watches) is NOT permitted.**

NOT TO BE FILLED IN BY PUPIL		
PAGE	SCORE	
	R	W
1 (7)		
2 (6)		
3 (4)		
4 (7)		
5 (5)		
6 (4)		
7 (5)		
8 (4)		
9 (6)		
10 (6)		
11 (3)		
12 (3)		
TOTAL (60)		
INITIALS OF MARKER(S)		

You have sixty minutes to complete this paper.
Do your working out in the spaces on the paper.

Question (and working space)	ANSWER	Please do not write in this space
1 (a) Calculate $1365 + 87 =$		
(b) Calculate $2136 - 418 =$		
(c) Calculate $522 \div 6 =$		
2 (a) Calculate the value of $2\frac{3}{5} + 1\frac{2}{3} =$		
(b) Calculate the value of $\frac{5}{9} - \frac{1}{4} =$		
(c) Fill in the box to make the sum work. $\square \times \frac{4}{5} = 5\frac{3}{5}$		
(d) Calculate $63 - (13 \times 7) =$		

(7)

R
W

Question (and working space)	ANSWER	Please do not write in this space
3 7^5 means 7 x 7 x 7 x 7 x 7. Fill in the boxes to make these sums work.		
(a) $3^4 = \square$		
(b) $5^{\square} = 125$		
4 This question is about the following numbers: $0.6 \quad \frac{4}{5} \quad 0.71 \quad \frac{3}{4} \quad \frac{5}{8}$		
(a) Which is the largest number?		
(b) Which is the number closest in value to 0.77?		
5 (a) Calculate $(3.2 \times 1000) + (2.81 \times 10000) =$		
(b) Calculate $(63 \times 100) - (1.4 \times 1000) =$		
		R W (6)

Question (and working space)	ANSWER	Please do not write in this space

6 Alex needs to buy a large amount of paper plates.
He visits four shops to compare prices:

MERRIFORDS	HALLYWELLS	NEWBURYS	STOCKTONS
10 plates for £1.80	12 plates for £2	20 plates for £3.35	17 pence per plate

(a) What is the name of the shop that has the cheapest price per plate?

(b) What is the name of the shop that has the most expensive price per plate?

7 £196 is shared between Katie, Temmy and Arjun so that Katie gets twice as much as Temmy and Temmy gets twice as much as Arjun.

(a) How much does Arjun get?

(b) How much does Katie get?

(4)

R
W

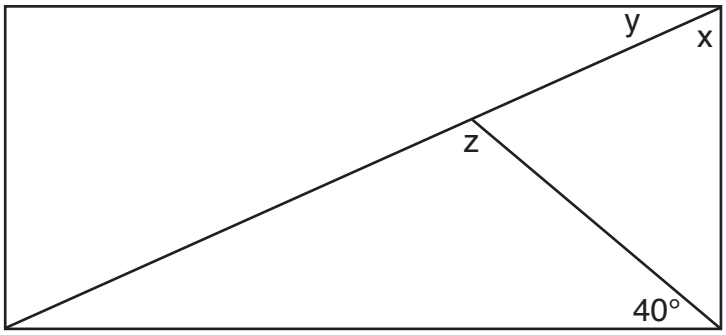
Question (and working space)	ANSWER	Please do not write in this space
8 A formula machine works as follows: Number in → x3 → +8 → Halve → Output So for example if you input 12: → 36 → 44 → 22 → Output is 22		
(a) Calculate the output if 40 is the number put in.		
(b) Find the number put in if 112 is the output.		
9 1000mg = 1g and 1000g = 1kg		
(a) Convert 0.0104kg into mg.	..... mg	
(b) Convert 20300mg into kg.	..... kg	
10 (a) How many cm are there in 62.41m?	..... cm	
(b) A rectangle has length 11cm and width 35mm. Find its area in square cm.	..... square cm	
(c) In imperial measurements there are 12 inches in 1 foot and 3 feet in one yard. How many inches are there in 13 yards?	..... inches	(7)

R
W

GO TO NEXT PAGE

Question (and working space)	ANSWER	Please do not write in this space

11 A rectangle is drawn below (not to scale). Angle x is twice as big as y. Calculate each angle x, y, z.

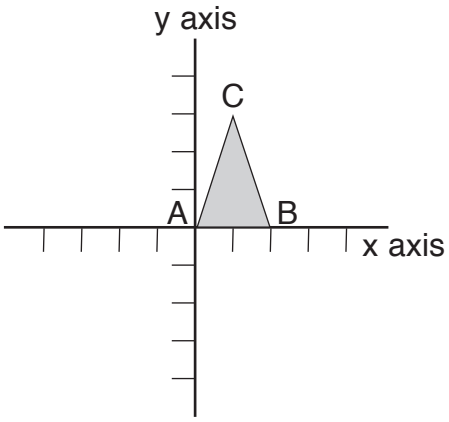


x =

y =

z =

12 The diagram below shows a triangle ABC made from three points A, with coordinates (0,0), B with coordinates (2,0) and C with coordinates (1,3).



(a) If the triangle ABC were reflected in the y-axis, give the coordinates of where the point C would move to.

(b) If the triangle ABC were rotated 90 degrees clockwise about the point A, give the coordinates of where the point C would move to.

R
W

(5)

Question (and working space)	ANSWER	Please do not write in this space

13 A simple security system requires a two digit code from the screen below.
So for example 87 and 98 are both possible codes.

6	7
8	9

(a) How many codes are possible if the same digit can be used twice?

(b) How many codes are possible if the same digit can't be used twice?

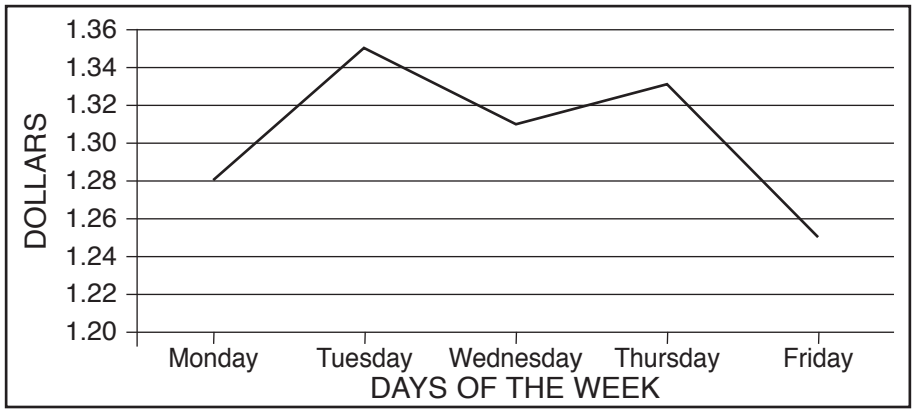
Another security system has this screen:

A	B	C
1	2	3
4	5	6

(c) If a code on this screen requires a letter followed by a single digit number, how many codes are possible?

(d) If instead a code on this screen requires a letter followed by two single digit numbers which can't be the same, how many codes are possible?

R
W
(4)

Question (and working space)	ANSWER	Please do not write in this space
14 The graph shows how many dollars can be obtained for one pound on different days of a week at a bank.  		
(a) On Monday, how many dollars could be bought with £50?	..... dollars	
(b) On Friday, how many pounds would be needed to buy 500 dollars?	..... pounds	
(c) Between which two days was there the greatest increase in dollars which could be bought for one pound?		
15 Anna is running a marathon. Her personal best is 3hr 44min. She starts the race at 11:35am.		
(a) At what time on a twelve hour clock does she need to finish in order to equal her personal best?		
(b) The course has checkpoints at a quarter, half and three quarters of the way. At what time on a twelve hour clock should she reach the three quarter check point if she is to equal her personal best at a steady pace?		R W (5)

Question (and working space)	ANSWER	Please do not write in this space
16 For each of these statements, say if they are **always** true, **sometimes** true or **never** true:		
(a) When you add two even numbers, you get an even number.	..... true	
(b) When you add two odd numbers, you get an odd number.	..... true	
(c) When you add two numbers which are multiples of three, you get a multiple of three.	..... true	
(d) When you add a multiple of six to a multiple of three, you get a multiple of nine.	..... true	R W (4)

Question (and working space)	ANSWER	Please do not write in this space

17 A train timetable gives the following information about a train from Exeter to Leeds.

Exeter	
Bristol	15:39
Birmingham	16:50
Derby	17:40
Sheffield	18:26
Leeds	19:10

(a) How long does the journey take from Bristol to Leeds?

(b) If the train took 1 hour and 18 minutes to get from Exeter to Bristol, when did it leave Exeter?

(c) There is a proposal to build a new high speed track between Derby and Leeds, which would reduce the journey time between these two stations by 20%. If the train still left Derby at 17:40, at what time would it arrive at Leeds using the new high speed track?

18 (a) Round 194.2 to the nearest 10.

(b) A whole number X is multiplied by 3 and then rounded to the nearest 10 to give 290. What is the largest possible value that X could be?

(c) C and D are whole numbers and C is 4 larger than D. The numbers C and D are added and then the result rounded to the nearest 10 to give 30. What is the smallest possible value that C could be?

R
W
(6)

Question (and working space)	ANSWER	Please do not write in this space

19 Three sequences are written out as follows:

	Rule	1st term	2nd term	3rd term	4th term
Sequence A	add 4 each term	21	25	29	33
Sequence B	add 5 each term	-32	-27	-22	-17
Sequence C	subtract 2 each term	321	319	317	315

(a) What would be the 20th term in sequence A?

(b) What would be the value of the 60th term in sequence B take away the 60th term in sequence A?

(c) At what term would the number in sequence A equal the number in sequence C?

20 (a) In a maths test out of 20, the scores of the six boys in the class are 7, 10, 11, 12, 14, 18.
What is the average score of the six boys?

(b) There are twelve girls in the same class, and the average score of the twelve girls is 15.
What is the average score of the 18 pupils in the class?

(c) One of the girls calculates that she got 65%. What mark out of 20 did she get?

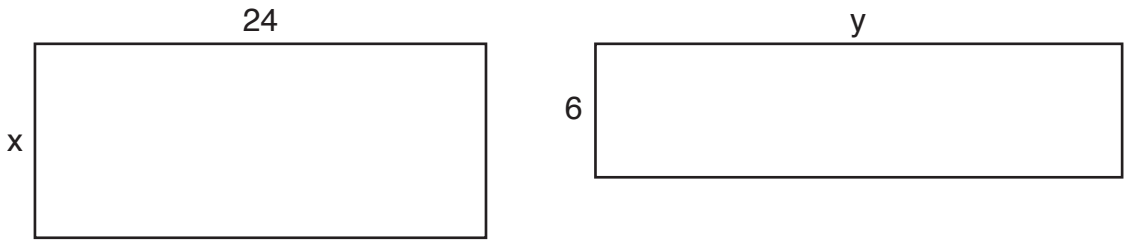
(6)

R
W

GO TO NEXT PAGE

Question (and working space)	ANSWER	Please do not write in this space

21 This question is about the two rectangles below (they are not drawn to scale).



(a) If x = 15 and the two rectangles have the same perimeter, find y.

y =

(b) If instead, you are told that y = 56 and the two rectangles have the same area, find x.

x =

(c) If instead, you are told that the two rectangles have the same perimeter but the left hand one has double the area of the right hand one, find x.

x =

R
W
(3)

Question (and working space)	ANSWER	Please do not write in this space

22 This question is about four positive whole numbers, A, B, C and D. You are not told the value of these numbers, but you are told that they follow these rules:

A = B multiplied by 2 **B = C multiplied by 3** **C = D multiplied by 4**

(a) What must be the value of (B x C) ÷ (A x D)?

(b) If A is less than 250, what is the maximum possible value of D?

(c) Which of A, B, C, D must be closest to the average of A, B, C and D?

END OF TEST (You should have completed 22 questions.)

R
W
(3)

CSSE

The Consortium of Selective Schools in Essex

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