

CSSE

The Consortium of Selective Schools in Essex

MATHEMATICS PAPER FOR 2017 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.

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NOT TO BE
FILLED IN BY PUPIL

PAGE	SCORE	
	R	W
1 (5)		
2 (7)		
3 (4)		
4 (7)		
5 (6)		
6 (3)		
7 (3)		
8 (3)		
9 (3)		
10 (3)		
11 (6)		
12 (7)		
13 (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) $147 + 74 =$

(b) $2035 + 966 =$

(c) $1020 - 877 =$

2 In each part of this question, the printed number can be made by multiplying two **prime numbers** together.

Write the two prime numbers in the empty boxes.

(a)

57	=		x	
----	---	--	---	--

(b)

91	=		x	
----	---	--	---	--

(5)

R
W

GO TO NEXT PAGE

Question (and working space)

ANSWER

Please do not write in this space

3 (a) What is the value of:

$$(5 + 3) \times (7 + 2) =$$

(b) What is the value of:

$$5 + (3 \times 7) + 2 =$$

(c) What is the value of:

$$(5 + 3) \times 7 + 2 =$$

(d) Work out the value of: $5 + 3 \times 7 + 2$

Is your answer the same as part (a), (b) or (c) of this question?
Write (a), (b) or (c) in the answer box.

4 (a) Which number is halfway between:

0.1 and 0.4?

(b) Which number is halfway between:

0.01 and 0.26?

(c) Which is the smallest:

5.301, 5.031, 5.13 or 5.103?

R
W

(7)

GO TO NEXT PAGE

Question (and working space)

ANSWER

Please do not write in this space

5 John is repeating a two-step calculation, using a 'number machine' to multiply by 7 and then subtract 3.

His number machine works like this:

INPUT \rightarrow $[x7]$ \rightarrow $[-3]$ \rightarrow OUTPUT

(a) What is the OUTPUT if John uses 12 as his INPUT?

(b) John obtains an OUTPUT of 39. What was his INPUT?

Casey is using a different 'multiply then add' number machine. When she inputs 3, the output is 26. When the input is 5, the output is 36.

$3 \rightarrow [x?] \rightarrow [+?] \rightarrow 26$

$5 \rightarrow [x?] \rightarrow [+?] \rightarrow 36$

(c) Fill in the unknown values for Casey's number machine, so you obtain the same input and output values as she did.

INPUT \rightarrow $[x.....]$ \rightarrow $[+.....]$ \rightarrow OUTPUT

(d) What OUTPUT will Casey obtain, when the INPUT is 4?

R
W
(4)

Question (and working space)

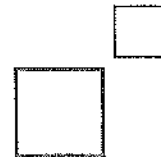
ANSWER

Please do not write in this space

6 (a) Calculate the value of:
 $2.3051 \times 1000 =$

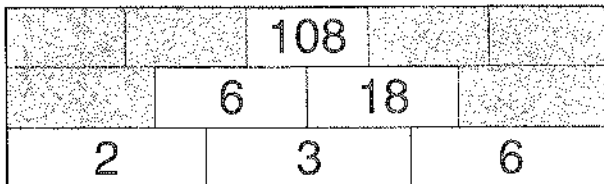
(b) Calculate the value of:
 $23051 \div 10000 =$

7 (a) Which is bigger:
 3^4 or 4^3 ?

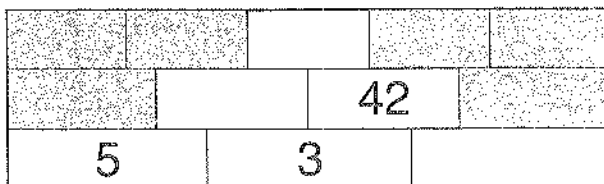


(b) Calculate the result of:
 $4^3 - 3^4 =$

8 In the pyramid of bricks below the number on a brick equals the two numbers immediately below it multiplied together as in this example.



Fill in the numbers on the three bricks to complete this pyramid.



R
W

(7)

Question (and working space)

ANSWER

Please do not write in this space

9 (a) A bottle contains 0.35 litres, how many *ml* is this?

.....*ml*

(b) A picture is 540mm tall, what is this measurement in *cm*?

.....*cm*

(c) A bag of flour contains 1029g. Rewrite this quantity in *kg*.

.....*kg*

(d) Add together 1*mm*, 0.1*cm* and 0.1*m*. Give your answer in *cm*.

.....*cm*

(e) The area of a postage stamp is calculated as:
 $2\text{cm} \times 2.5\text{cm} = 5\text{cm}^2$
What is the area of this stamp in *mm*²?

.....*mm*²

10 A Formula 1 race is 96 laps of the track. A driver averages 1 minute 20 seconds per lap. How long is his race in hours and minutes?

.....*hrs*.....*min*

(6)

R
W

Question (and working space)

ANSWER

Please do not write in this space

11 A coat is advertised on a discount website. The original price is £120. Ashok and Ed are both trying to get the best price to buy the coat.

(a) Ashok buys the coat for sale at '40% off'. How much does he pay for it?

£.....

(b) Ed finds the £120 coat at a different website, advertised with a 30% discount. As a 'registered member' he is able to get a further 10% off this advertised price.

Work out the advertised price:.....

Reduce the advertised price by 10%. How much does Ed pay?

£.....

12 Two square numbers have a difference of 33. Identify the two missing whole numbers that complete this calculation.

$$A^2 - B^2 = 33$$

Fill in the two empty boxes to show your answer:

$$\square^2 - \square^2 = 33$$

R
W

(3)

Question (and working space)

ANSWER

Please do not write in this space

- 19 (a) Petra asks five friends how much time they spent watching TV the day before. The answers were 2, 3, 4, 5 and 8 hours.
- What is the average amount of time watching TV?

Valeri asks twenty friends the same question as Petra. She records their answers in a table.

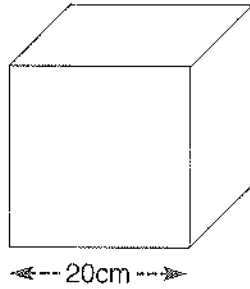
<i>hours</i>	<i>people</i>
1	5
2	5
3	6
4	4

- (b) What is the total amount of TV watched by Valeri's 20 friends?

- (c) What is the average time Valeri's friends watched TV?

R
W
(3)

14 Errol has a wooden cube 20cm x 20cm x 20cm.

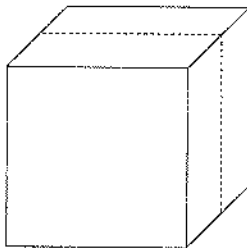


(a) How many faces does a cube have?

(b) Errol paints the cube all over. What area in cm^2 does he paint?

(c) Errol now uses a saw to cut the cube in two along the dotted line shown.

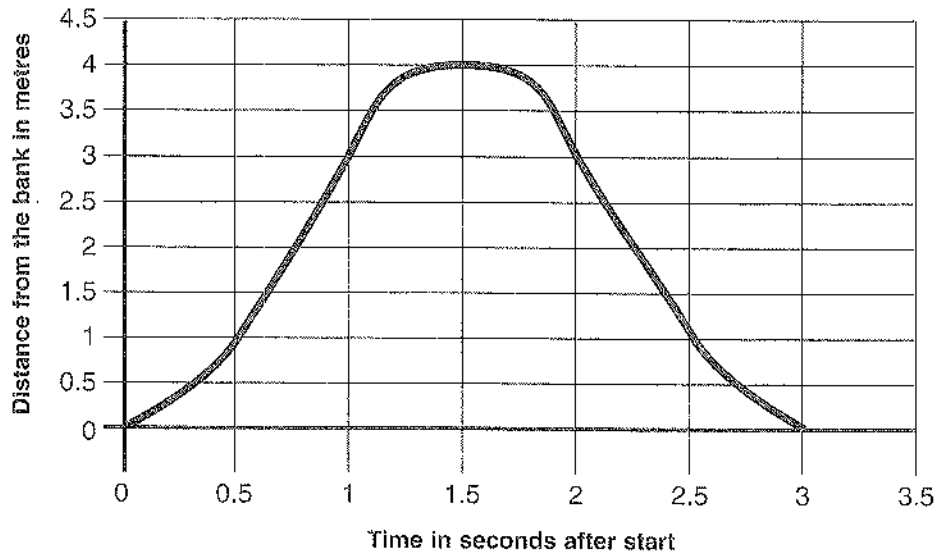
What fraction of the area of the two new blocks is not painted?



R
W
(3)

- 15 Jo ties a rope from a branch of a tree overhanging a river. She stands on the bank holding the rope and then launches herself to swing out over the river and back to the bank where she stops.

The graph shows her distance from the bank at different times from the start.



(a) How far does Jo travel in total?

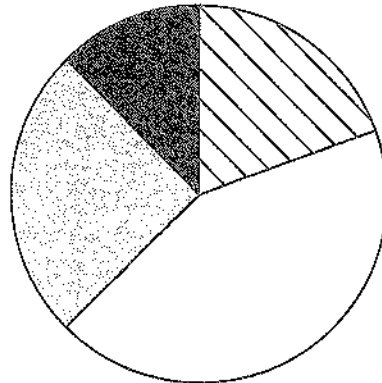
(b) For how long is Jo more than 3 metres from the bank?

(c) How far from the bank is she when she is travelling fastest?

16 The pie chart and table show the answers given by 80 people to a survey about their favourite Summer Sports Event of 2016.

FAVOURITE SUMMER SPORTS EVENT

Euro 2016	16
Rio Olympics	
Tour de France	
Other	9



(a) The pie chart has an angle of 90° for the Tour de France. How many people does this represent?

(b) What fraction of the answers were for 'Euro 2016'? (Simplify your answer, if possible.)

(c) Calculate the angle needed for 'Euro 2016' on the pie chart.

17 Fill in the missing numbers in these fraction calculations.

(a) $\frac{3}{5} + \frac{\boxed{}}{10} = \frac{9}{10}$

(b) $\frac{2}{7} + \frac{3}{10} = \frac{\boxed{}}{70}$

(c) $\frac{1}{5} + \frac{3}{4} = \frac{19}{\boxed{}}$

18 Which of these statements is true (✓) and which of these statements is false (✗)? Indicate clearly with a tick or cross.

(a) <i>The two diagonals of a rectangle are always equal in length.</i>	
(b) <i>The two diagonals of a parallelogram are always equal in length.</i>	
(c) <i>The two diagonals of a rectangle always cross each other at right angles.</i>	

19 Complete the empty boxes in the following table with the missing measurements for the rectangles.

length (cm)	width (cm)	perimeter (cm)	area (cm ²)
5	3		
14			42

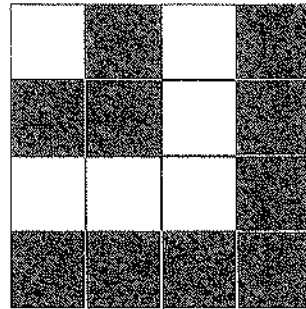
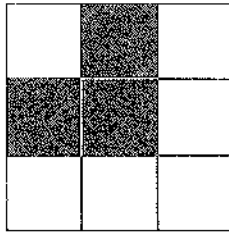
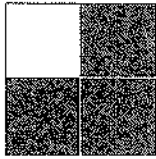
20 Seventy five Year 6 pupils visited a theme park on a school trip. They each had the opportunity to go on 'Doomfall' or on 'Skyleap' or to do both. After the trip they were asked what they had done. Eight pupils didn't go on either ride. Fifty three pupils raised their hands to indicate they had been on Doomfall. Forty seven confirmed they had completed Skyleap. Use this information to answer the following questions.

(a) How many pupils must have been on both rides?

(b) How many pupils rode *only* Doomfall?

(c) What fraction of the pupils did *not* ride Skyleap? (Simplify your answer, if possible.)

21 Look carefully at the pattern sequence, made from black and white square tiles:



(a) How many tiles would be needed, in total for the 7th pattern in this sequence?

(b) How many black tiles are needed for the 7th pattern?

(c) The 9th pattern in the sequence has 36 black tiles. Which other pattern in the sequence also uses exactly 36 black tiles?

END OF TEST (You should have completed 21 questions.)