

Name _____

Candidate Number _____

Room Number _____

WITHINGTON GIRLS' SCHOOL

ENTRANCE EXAMINATION 2019

MATHEMATICS

PAPER 2

TIME: 40 MINUTES

- Some questions in this paper involve new ideas, but there are examples to guide you and help you understand these new ideas.
- Look at the examples carefully and try to answer all the questions.
- If you cannot answer a question, leave it and go on to the next one.
- Use any time you have left to check your answers and go back to any questions you have left out.

CALCULATORS MUST NOT BE USED

PAPER 2 TOTAL		
Marker's Initials		
Checker's Initials		

1. I think of a number, add 3 then divide by 4. The answer is 12. What is my starting number?

1

2. (a) Mia buys five rulers which cost 20p each and one rubber which costs 15p. How much does she spend?

£ _____

1

- (b) Zara spends £1.55 buying 3 pencils and 2 pens. The pens cost 40p each. What is the cost of a pencil?

_____p

2

- (c) Highlighters cost 50p each or 3 for £1.20.

Ria has £5.50. She buys as many highlighters as possible.

How much change will she get?

_____p

2

3. Withington pupils are asked to name their favourite ice cream.

The results are shown in the table. One result is missing.

Vanilla	Chocolate	Mint Choc Chip	Strawberry
	20%	15%	20%

120 pupils chose mint choc chip.

How many chose vanilla?

2

4. A rectangular floor is 12 m long and 4 m wide. The floor is going to be covered in square tiles.

How many tiles are needed if

(a) Each tile measures 1 m by 1 m?

1

(b) Each tile measures 50 cm by 50 cm?

1

5. Year 6 are putting out 5 equally spaced hurdles for a 45 m race.

The distance from the start to the first hurdle is 10.5 m.

The distance from the last hurdle to the end of the race is 12.5 m.

What is the distance from one hurdle to the next?



_____ m

2

6. Joe has these coins:



(a) Write down the coins Joe should use to make 18p.

1

(b) Write down two ways Joe can make 36 p.

_____ or _____

2

(c) Write down the two amounts of money less than 10 p that **cannot** be made with Joe's coins.

_____ and _____

2

7. There are 3 car parks in the town centre that charge as follows:

Central	£1.50 per hour or part of an hour
North	Free for 2 hours, then £2.50 per hour or part of an hour
South	Free for 1 hour, then £2 per hour or part of an hour

(a) Alys parks at Central for 4 hours. How much does she pay?

£ _____

1

(b) Bonnie has £4 in her purse. How long can she park at South for?

_____ hours

1

(c) Cara parks for 6 hours. Which car park will be cheapest?

2

8. Amira and Sangeeta walk to school to raise money for charity.

They walk at a constant speed.

By 07:00 they are half way there and by 07:20 they are three quarters of the way there.

(a) How long will their journey take altogether?

_____ mins

2

(b) What time did they leave home?

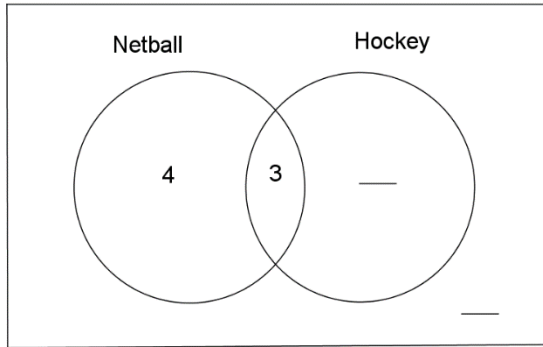
1

(c) Their brother Pav does not set out until 08:00 so he runs to school at a speed which is double Amira and Sangeeta's walking speed.

What time will he reach school?

2

9. Zainab asks her friends if they play hockey or netball or both.
 She draws a Venn diagram to show their answers.
 She also draws a two-way table to show their answers.
 Fill in the missing numbers in both the Venn diagram and the table.



	Netball	Not netball	Totals
Hockey			8
Not Hockey	4		
Totals			20

4

10. The symbols      represent the numbers 1, 2, 4, 8, 16 but not in that order.

Use the clues to match each symbol to the correct number.

$$\triangle \times \text{smiley face} = \triangle$$

$$\diamond \times \diamond \times \diamond = \text{crescent moon}$$

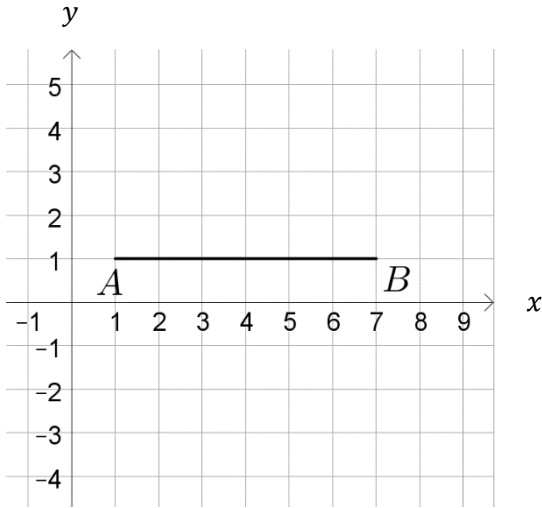
$$\text{heart} \div 2 = \text{crescent moon}$$

$$\text{heart} = \underline{\quad} \quad \text{crescent moon} = \underline{\quad} \quad \triangle = \underline{\quad} \quad \text{smiley face} = \underline{\quad} \quad \diamond = \underline{\quad}$$

4

PLEASE TURN OVER

11. ABC is an isosceles triangle with an area of 12 cm^2 .
Find two possible positions for corner C and write down their coordinates.



C = (,) 3
C = (,)

12. (a) Anna has a bag containing fewer than **50** sweets.
She can split her sweets into 5 equal piles or into 7 equal piles.
How many sweets does she have?

_____ 1

- (b) Ben has a bag containing fewer than **40** sweets.
He can split his sweets into 2 equal piles or into 3 equal piles but when he tries to split them into 4 equal piles, he has 2 sweets left over.
How many sweets could Ben have? List all the possible answers.

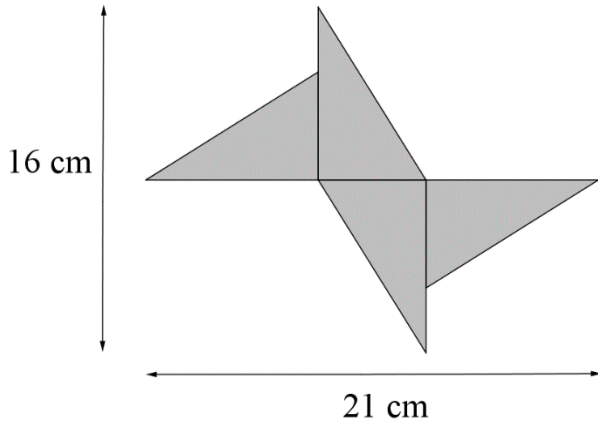
_____ 2

- (c) Cora has a bag containing fewer than **40** sweets.
She can split her sweets into 2 equal piles or into 3 equal piles or into 4 equal piles but when she tries to split them into 5 equal piles, she has 1 sweet left over.
How many sweets does Cora have?

_____ 2

13. The logo is made of four identical right-angled triangles.

Find the area of one of the triangles.



_____cm² 3

14. For each part of this question put one of the numbers given into each box to give the **largest possible answer**. (You do not need to work out any of the answers!)

(a) 3, 7, 19 $\square + \frac{\square}{\square}$

2

(b) 6, 8, 11 $\square (\square - \square)$

2

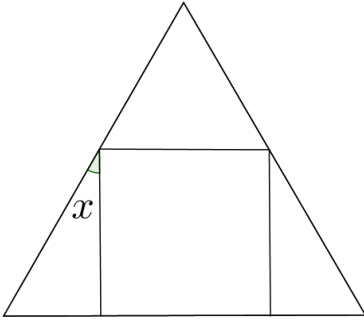
(c) 5, 7, 12 $\frac{1}{\square} + \frac{2}{\square} + \square$

2

15. When I looked at my fitness tracker this morning, it showed I had taken 1991 steps today. This is a palindromic number (which means it is the same read forwards as read backwards). How many **more** steps do I need to take before my fitness tracker shows another palindromic number?

_____ 2

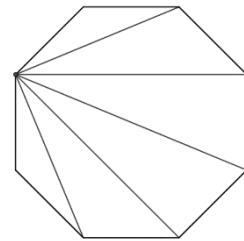
16. The diagram shows a square inside an equilateral triangle.
Find the value of angle x .



$x = \underline{\hspace{2cm}}^\circ$

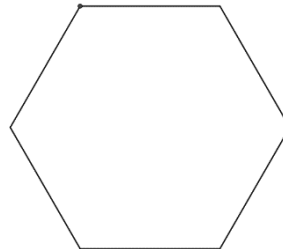
2

17. Starting at a corner, an octagon can be split into 6 triangles as shown.



So the sum of the angles of an octagon is $6 \times 180 = 1080^\circ$

- (a) Use this method to find the sum of the angles of
(i) a hexagon



$\underline{\hspace{2cm}}^\circ$

2

- (ii) a polygon with 12 sides

$\underline{\hspace{2cm}}^\circ$

1

- (b) The angles in a polygon add up to 900° . How many sides does the polygon have?

$\underline{\hspace{2cm}}$

2

18. When n football teams play each other once, the total number of matches is

$$\frac{n \times (n - 1)}{2}$$

For example, when 9 football teams play each other once, the total number of matches is

$$\frac{9 \times 8}{2} = 36$$

(a) How many matches are there when 3 teams play each other once?

(b) How many matches are there when 7 teams play each other **twice**? _____

(c) n football teams play each other once. The total number of matches is 15.
Find the value of n . _____

2

1

2

END OF TEST – NOW CHECK YOUR WORKING