

Name

Examination Number

Room Number

WITHINGTON GIRLS' SCHOOL

ENTRANCE EXAMINATION 2014

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. Complete the following

(a) $33 + 34 = 100 - \square$

(b) $8 \times 80 \times 100 = 8^2 \times \square$

(c) $21 + 22 + 23 = 2 \times 3 \times \square$

(d) $0.6 \times 100 = 180 \div \square$

1
1
1
1

2. Refresher sweets cost 12 pence each or three for 30 pence. What is the maximum number of Refresher sweets Roma can buy for £2?

Number of Refresher sweets = _____

1
1

3. Find the number indicated by the arrow on the scales below:

(a)



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

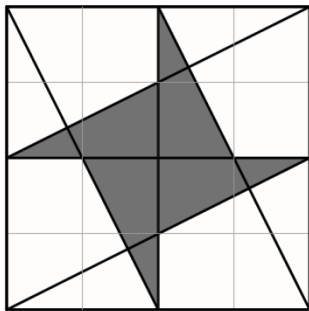
(b)



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

1
1
1

4. What fraction of the shape is shaded? Write your answer as simply as you can.



Fraction = _____

1

5. (a)



The film **“Iron Man 3”** lasts 2 hours. Akhil pressed the fast forward button so that it played at 8 times normal speed. How long did it take to play the whole film?

1

_____minutes

1

(b) When the film **“Epic”** is played back at 16 times the normal speed it takes $6\frac{1}{2}$ minutes. How long would it take to play the film at normal speed? Give your answer in minutes.



1

_____minutes

1

(c)



The film **“G.I. Joe”** lasts 1 hour 50 minutes at normal speed. When William presses the fast forward button, it only takes 5 minutes to play the film. How many times faster than normal is the play back?

1

1

1

6. The area of this shape is 28 cm^2 . Work out the perimeter of the shape.

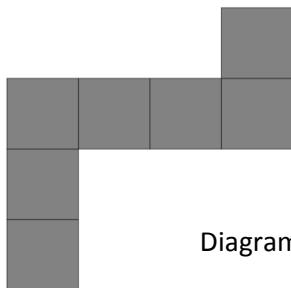


Diagram not to scale

1

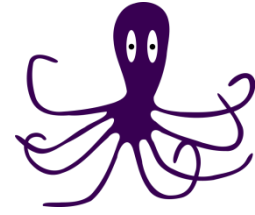
1

Perimeter = _____cm

1

PLEASE TURN OVER

7. An octopus has 8 legs, making 4 pairs. If each pair of legs takes 15 seconds to open a jar of jam. How many jars of jam could an octopus open in 20 minutes?



1

1

Number of Jars of Jam = _____

1

8. The diagram shows the area of three faces of a cuboid. Work out the length, width and height of the cuboid.

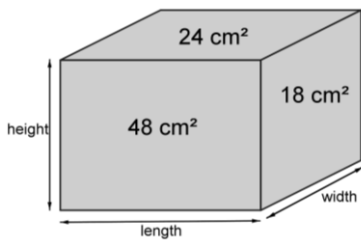


Diagram not to scale

Length = _____ cm

Width = _____ cm

Height = _____ cm

2

9. (a) What is 50% of 50% of £3.20?

_____ pence

1

(b) What is 50% of 20% of £3.50?

_____ pence

1

1

10. The diagram shows a rectangle ABCD drawn inside a triangle EFG. The angle at E is 30° . The angle at F is 80° . Calculate the size of the angle marked x .

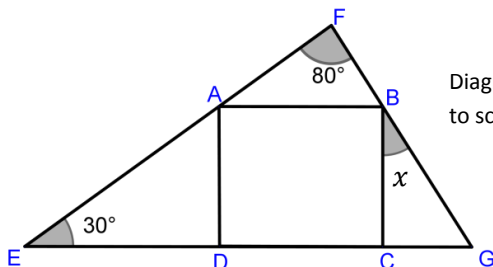


Diagram not to scale

1

$x =$ _____^o

1

11. The name ANDREW is repeated over and over again like this:

ANDREWANDREWANDREWAN.....

(a) What is the 28th letter?

_____ 1

(b) What is the 200th letter? (You are not expected to write all the letters out!)

_____ 1

_____ 1

12. The graph calculates the cost of carrots at Sainsbury's and Asda.



(a) What is the cost of 3kg of carrots at Asda?

£ _____ 1

(b) How many kilogrammes of carrots can you buy at Asda for £2.40

_____ kg 1

(c) What is the cost of 32kg of carrots at Sainsbury's?

£ _____ 2

(d) Amanda has £12 to spend. How many more kilogrammes of carrots can she buy at Asda than at Sainsbury's.

_____ kg 3

PLEASE TURN OVER

13. Work out

(a) $0.2 \times 4 + 1.4 + 0.3$

(b) $4 \times (2 + 7) - 2 \times (5 + 3)$

1
1
1

14. Anna and Bethany are twins. Caitlin is their sister. The mean of all three sisters' ages is 10 years and the range is 6 years. How old is Anna?

There are two possible answers to this question.

_____ or _____

1

2

15. A wheel barrow weighs 31kg when full of soil. Jill removes $\frac{1}{5}$ of the soil from the wheel barrow and it now weighs 27 kg. What is the weight of the wheel barrow when it is empty?

Wheel barrow weighs _____ kg

1

1

16. In a magic square, each row, column and both main diagonals have the same total. Which of the following numbers should replace n in this magic square; 4, 5 or 6?

	8	
11	n	7

Circle the correct answer. $n = 4 \quad 5 \quad 6$

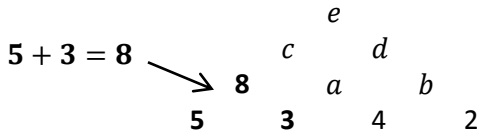
2

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17. The diagram below shows a number pyramid.
By adding the numbers in any row together in pairs you can find the numbers in the row above.

For example, on the bottom row $5 + 3 = 8$ on the row above

(a) Complete the triangle to find the values of a, b, c, d and e



a = _____

1

b = _____

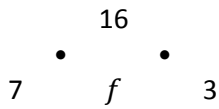
c = _____

d = _____

1

e = _____

(b) Here is a different number pyramid. Find the value of f ?

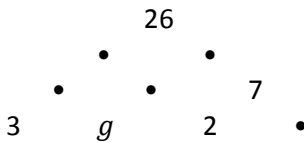


f = _____

1

1

(c) Here is a different number pyramid. Find the value of g ?



g = _____

1

1

1

18. There are 80 girls in Year 7 at Withington.



45 watch Strictly Come Dancing



60 watch The X Factor.

10 girls watch neither programme. How many watch both?

Number of girls who watch both = _____

1

1

1

19. In this question you are going to simplify fractions within fractions.

The following example shows how to change $\frac{\frac{2}{3}}{5}$ into a proper fraction.

A proper fraction is one where the top and bottom of the fraction are both whole numbers.

$$\frac{\frac{2}{3}}{5} \times 3 = \frac{2}{15}$$

$\frac{2}{3}$ of 3

(a) Using the same method, turn $\frac{\frac{3}{5}}{4}$ into a proper fraction

_____ 1
_____ 1

(b) When $\frac{\frac{5}{6}}{a}$ is changed into a proper fraction it becomes $\frac{5}{24}$. What is a ?

$a =$ _____ 1
_____ 1

The following example shows how to change $\frac{\frac{2}{3}}{\frac{5}{7}}$ into a proper fraction.

$$\frac{\frac{2}{3}}{\frac{5}{7}} \times 21 = \frac{14}{15}$$

$\frac{2}{3}$ of 21

$\frac{5}{7}$ of 21

(c) Using the same method, can you turn $\frac{\frac{3}{2}}{\frac{5}{3}}$ into a proper fraction.

_____ 1
_____ 1

(d) When $\frac{\frac{2}{b}}{\frac{3}{5}}$ is changed into a proper fraction it becomes $\frac{10}{27}$. What is b ?

_____ 1
_____ 1
 $b =$ _____ 1

(e) Turn $\frac{\frac{a}{b}}{\frac{c}{d}}$ into a proper fraction.

_____ 1
_____ 1

END OF TEST – NOW CHECK YOUR ANSWERS

