

Name _____

Candidate Number _____

Room Number _____

WITHINGTON GIRLS' SCHOOL

SAMPLE PAPER

MATHEMATICS

TIME: 45 MINUTES

- Try to answer all the questions.
- Write your working and your answer in the space provided after each question.
- Answers should be written in their simplest form.
For example, $\frac{1}{4}$ is simpler than $\frac{2}{8}$ and the mixed number $1\frac{1}{4}$ is simpler than $\frac{5}{4}$.
- 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.

Q1-16	17
Q17-21	11
Q22-25	13
Q26-27	11
Q28	6
PAPER TOTAL	58
Checker's Initials	

CALCULATORS MUST NOT BE USED

Name

Cand no.

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write in
this
margin

1.	Work out $422 - 265$ _____	2.	Work out 734×27 _____	1 1
3.	Work out 45% of 60 _____	4.	Work out $1960 \div 8$ _____	1 1
5.	Work out 5.75×5 _____	6.	Work out $10 \div 1\frac{1}{4}$ _____	1 1
7.	What number goes in the box? $\frac{4}{\boxed{}}$ of 36 = 16	8.	What number goes in the box? $8 \cdot 1 - \boxed{} = 3 \cdot 4$	1 1
9.	Subtract $\frac{3}{4}$ from 4.15 _____	10.	What is the next number in this sequence? 17, 13, 9, 5, ... _____	1 1

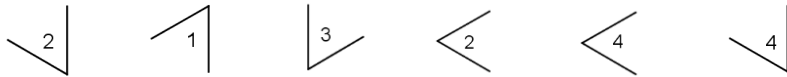
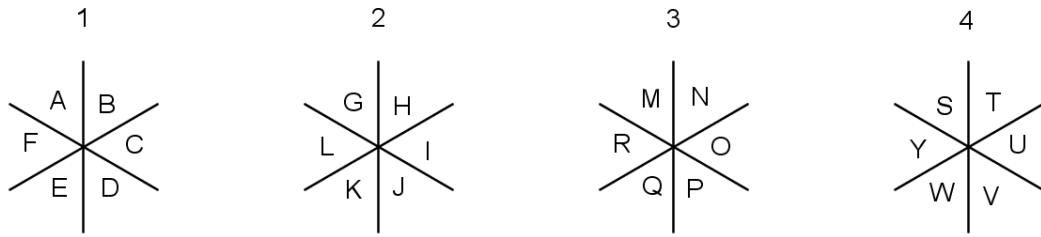
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11.	9 cups of tea cost £19.80. How much does one cup cost?	£ _____	1
12.	Work out $\sqrt{49} + 6^2$	_____	1
13.	7 oranges cost £2.80. Find the cost of 5 oranges.	£ _____	1
14.	What is $\frac{1}{5}$ of 20% of 50?	_____	1
15.	The numbers 14, 15, 17 and x have a range of 7. Find two possible values for x .	_____ or _____	1
16.	You are given that $35 \times 24 = 840$. Use this fact to work out		
	(a) $840 \div 240$	_____	1
	(b) $840 \div 0.35$	_____	1

17. Crack the code and translate the message.



1

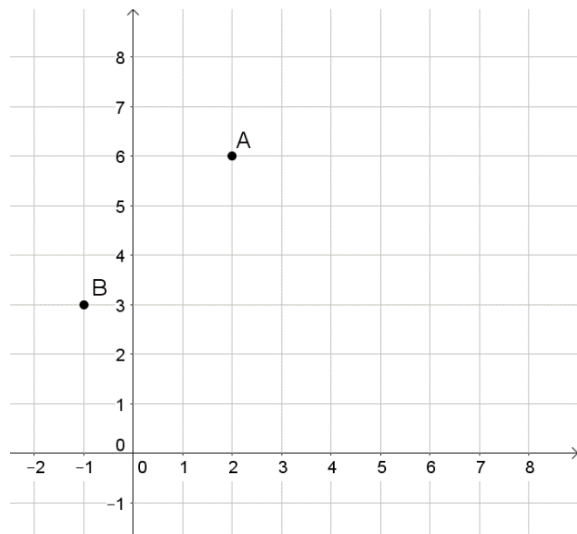
18. Anisha works in a shop.
 She is paid £7.50 an hour during the week and £9.50 an hour at weekends.
 Anisha can get a lift with her mum to work during the week but has to go on the train if she works at the weekend. A return (there and back) train ticket costs £5.20.

How much would Anisha take home if she works 8 hours during the week and 4 hours on Saturday.

£ _____

1
1

19. ABC is an isosceles triangle with
 $AC = BC$
 On the grid, mark with a cross (×) two possible positions for the point C.



1

20. A train stopped at Stockport station.
42 people got off and 60 people got on.
There were 322 people on the train when it left Stockport.
How many were on the train before it stopped at Stockport?

1

1

21. \otimes means square the first number and then add three times the second number

$$a \otimes b = a^2 + 3b$$

For example:

$$5 \otimes 2 = 25 + 3 \times 2 = 31$$

Find values for \blacksquare , \star and \blacklozenge .

(a) $4 \otimes 5 = \blacksquare$

1

(b) $6 \otimes \star = 48$

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

1

1

(c) $\blacklozenge \otimes 5 = 79$

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

1

1

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

22. In the following subtraction, **a**, **b**, **c** and **d** are single digits. Work out what they are.

$$\begin{array}{r}
 \mathbf{d} \quad 7 \quad 3 \quad \mathbf{a} \\
 - \quad 1 \quad \mathbf{c} \quad 2 \quad 5 \\
 \hline
 \mathbf{2} \quad 9 \quad \mathbf{b} \quad 3 \\
 \hline
 \end{array}$$

$a = \underline{\quad}$

$b = \underline{\quad}$

$c = \underline{\quad}$

$d = \underline{\quad}$

In the following multiplication, **f**, **g**, **h** and **k** are single digits. Work out what they are.

$$\begin{array}{r}
 \mathbf{k} \quad \mathbf{h} \quad \mathbf{g} \quad 4 \\
 \times \quad \quad \quad \quad 9 \\
 \hline
 2 \quad 2 \quad 0 \quad 8 \quad \mathbf{f} \\
 \hline
 \end{array}$$

$f = \underline{\quad}$

$g = \underline{\quad}$

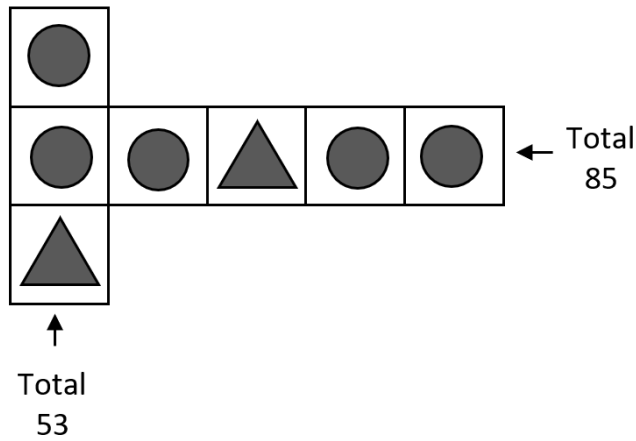
$h = \underline{\quad}$

$k = \underline{\quad}$

23. Pavanna and Naomi share some money in the ratio 2:3.
Naomi divides her share between her friends Maria and Grace in the ratio 3:4.
Maria receives £27, how much money was originally shared?

£

24. Each shape stands for a number.

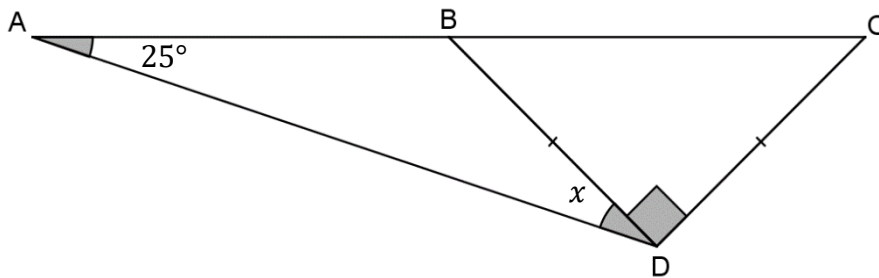


Find the value of one triangle and one circle.

= _____
 = _____

1
1
1

25. ABC is a straight line.
Triangle BCD is isosceles.

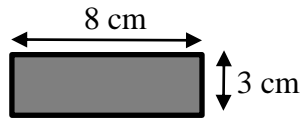


Find the size of the angle x .

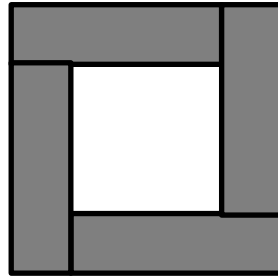
$x =$ _____ $^{\circ}$

1
1

26. Sana has four identical rectangles each measuring 8cm by 3cm.



She joins them together to make a large square with a smaller square inside it.



(a) What is the perimeter of the larger square?

_____ cm

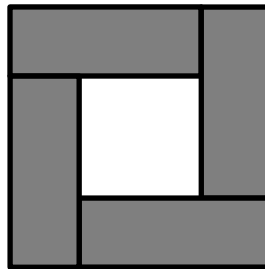
1

(b) What is the area of the smaller square?

_____ cm²

1

(c) Zara has used a **different** set of four **identical** rectangles to make this shape.



The area of the large square is 169 cm².

The perimeter of the smaller square is 20 cm.

What is the length and width of one rectangle?

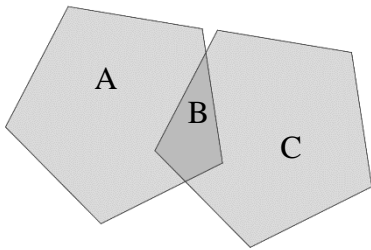
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1

1

Length = _____ cm width = _____ cm

27. In this questions all the pentagons are identical. Each pentagon has an area of 60 cm^2 . Two pentagons overlap to make 3 regions A, B (the overlap) and C. For example

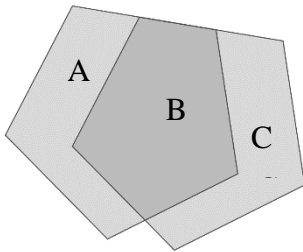


In this diagram the pentagons overlap by 10%.

To work out the total area (A+B+C)

$$\begin{aligned} \text{Area} &= \text{pentagon (A+B)} + 90\% \text{ of pentagon (C)} \\ &= 60 + 54 \\ &= 114 \end{aligned}$$

(a)

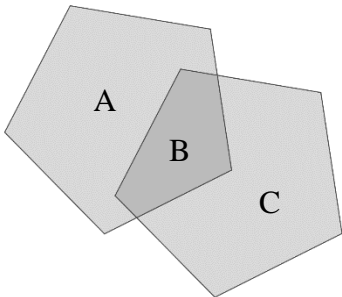


These pentagons overlap by 60%. Find the total area.

1
1

_____ cm^2

(b)

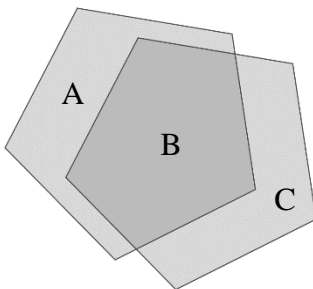


In this diagram C is equal to 45 cm^2 . Find the total area.

1
1

_____ cm^2

(c)



The total area (A+B+C) is 75 cm^2 . Find the percentage overlap.

1
1

_____ cm^2

28. The mythical land of **Adlucem** has its very own currency.

The currency system uses fens (f.), monts (m.) and troys (t.) with

1 fen = 15 monts or 1f. = 15m.
1 mont = 8 troys or 1m. = 8t.



The table shows how to add currency in Adlucem.

3 fens, 12 monts and 5 troys (3f. 12m. 5t.)
2 fens, 5 monts and 4 troys pence (2f. 5m. 4t.)
= 6 fens 3 monts and 1 troy (5f. 3m. 1t.)

	f.	m.	t.
	3	12	5
+	2	5	4
	6	3	1
	1	1	

Work out the following calculations, giving your answer in its simplest form.
For example, 12t. should be written 1m. 4t.

(a) 1 bananas cost 4t. How many bananas could be bought for 5m.?

1

1

_____bananas

(b) Find the total cost of 4f. 11m. 7t. and 2f. 9m. 4t.

1

1

___f. ___m. ___t.

(c) Subtract 2f. 10m. 5t from 5f. 8m. 4t.

1

1

___f. ___m. ___t