

Algebra

- 1 Anne says, "I am thinking of two numbers whose difference is 10 and which multiply together to give 56"

What two numbers is she thinking of?

<input type="text"/>	and	<input type="text"/>
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1 mark

- 2 n stands for a number.

$$n + 7 = 15$$

What is the value of $n + 10$?

1 mark

- 3 Jon makes a sequence of numbers by multiplying the **previous** number by 4 and adding 5.

This is part of his sequence.

<input type="text"/>	,	25,	<input type="text"/>
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Write the missing numbers from the sequence in the boxes.

2 marks

- 4 p stands for a number.

Write the missing numbers in the table.

p	$20 - 3p$
4	
	2

2 marks

5 James earns £14.50 each week for delivering leaflets for a pizza company.

He decides to save his money every week and writes down a formula for how much he will have saved altogether, T , after a number of weeks, w .

$$T = 25 + 14.5w$$

Explain what the 25 in the formula could be.

1 mark

6 Find the value that goes in each box to satisfy the equation.

$$3 \times \boxed{} + 7 = 22$$

1 mark

$$29 - 2 \times \boxed{} = 1$$

1 mark

7 Mary thinks of a number, multiplies it by 5 and then subtracts 7

x is her original number.

Write her answer as an algebraic expression.

1 mark

8

Draw lines to match each statement to the correct expression.

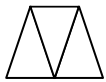
One has been done for you.

15 more than a	$\frac{b}{15}$
15 fewer than b	$\frac{15}{b}$
b fewer than 15	$a + 15$
b shared equally between 15	$b - 15$
15 shared equally between b	$15 - b$

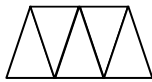
2 marks

9

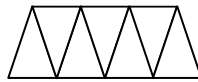
A sequence of trapezium shapes is made out of isosceles triangles.



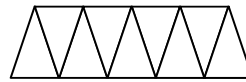
Pattern 1



Pattern 2



Pattern 3



Pattern 4

Stephen says, "The pattern goes up in twos so there will be 20 triangles in the 10th pattern."

Explain why he is wrong.

1 mark

10

Jeremy uses the following formula to convert UK shoe sizes to European shoe sizes.

Multiply UK shoe size by 1.25 then add 32

Round the answer down to the nearest whole number.

His shoe size is 9

What is the equivalent European size?

Show your method

2 marks

11

A number sequence is generated by doubling the **previous** number and adding 0.6

, 12, 24.6, , 100.2

Write the missing numbers in the sequence in the correct place.

2 marks

12

$3x - 2y = 10$

x and y are whole numbers greater than 0 and less than 10

One possible answer is $x = 4$ and $y = 1$

Find **all** the other possible answers.

2 marks

13 Alima is asked to make up a $5\frac{1}{2}$ times table.

This is how she starts:

$$1 \times 5\frac{1}{2} = 5\frac{1}{2}$$

$$2 \times 5\frac{1}{2} = 11$$

$$3 \times 5\frac{1}{2} = 16\frac{1}{2}$$

$$4 \times 5\frac{1}{2} = 22$$

$$5 \times 5\frac{1}{2} = 27\frac{1}{2}$$

Fill in the gaps in these multiplication facts.

$$\boxed{} \times 5\frac{1}{2} = 275$$

_____ / 1 mark

$$\boxed{} \times 5\frac{1}{2} = 1105\frac{1}{2}$$

_____ / 1 mark

14 Explain why it is impossible to find a whole number that satisfies this equation.

$$10 + x = 4x$$

_____ / 1 mark

Total _____ / 22 marks