Test 2 **Essential Maths Book 7H Units 3 & 4**

No calculators

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1. Write a number to complete each statement.

The first is done as an example.

3	<	4	<	8
3	<		<	4
3	<		<	3.2
3	<		<	3.06

(3 marks)

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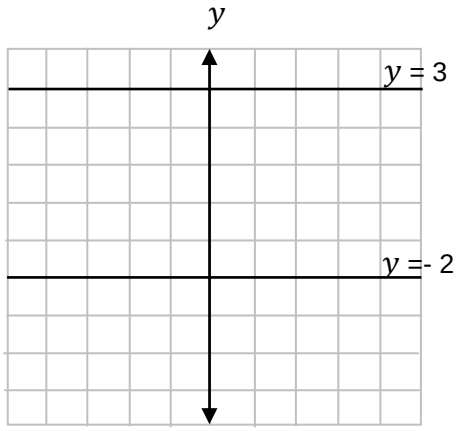
2. The grid shows the y-axis and the lines y = 3 and y = -2.



Draw your own grid and draw on it:

a) the x-axis

b) the line x = 2

c) the line $y = x$

(2 marks)

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3. Every rectangle and every parallelogram have the property:

They each have four sides.

a) State another property that every rectangle and every parallelogram has.

b) Give a property of the rectangle that is not a property of the parallelogram.

(2 marks)

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4. Copy and complete this multiplication grid.

x	4	-2	-5
3	12		
-2			
6			

(3 marks)

5. a) Look at this equation $m + n = 12$

Write down three different solutions to the equation. (2 marks)
For each solution write m = ……., n = ……..

b) Now look at the equation $mn = 35$

What values of m and n are solutions to *both* $m + n = 12$ and $mn = 35$? (1 mark)

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6. a) The average daily sleep time for a domestic cat is 11.5 hours.
What is this in hours and minutes? (1 mark)

b) An African lion sleeps 20% more than the cat.
What is the sleep time of the African lion? (2 marks)

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7. In these sequences the numbers go up in *equal steps*.
Copy each sequence and fill in the missing numbers.

a) | | 2 | 5 | | | 14 | (1 mark)

b) | | | 1 | 5 | 9 | | (1 mark)

c) | -2 | | | | | 23 | (1 mark)

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8. A cake is cut into 3 slices from the centre.

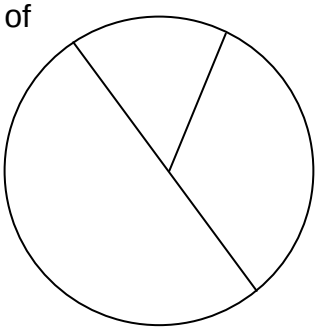
The size of the slices is proportional to the ages of the children eating the cake.

Ann is 5 years old

Becky is 10 years old

Don is 15 years old

What will be the angle at the centre of Ann's slice?



(not to scale)

(2 marks)

9. Ben says:

Think of a number	n
Subtract 5 from it	n - 5
Multiply the result by 3	(n – 5) x 3
Add 7 to it	
Divide the result by 8	
Add your original number	
The answer is 11	

Put numbers and symbols in the empty boxes to complete the equation.

$$\frac{((n - 5) \times 3) \;\square\; \square}{\square} \;\square\; \square = 11$$

(3 marks)

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10. A bag contains balls which are either red, white or blue.

There are twice as many red balls as white balls.

The probability of taking a blue ball from the bag is $\frac{1}{10}$

What is the probability of taking a white ball from the bag? (2 marks)

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11. a and b are two numbers.

We know that

$a + b = 9$	$a > b$	$b < 4$

What values could a and b be?

Write two pairs. (2 marks)

12. Three families live in a tiny village.

The number of people in the three families are given by the letters *p*, *q* and *r*.

We know that $\boxed{p = q + 3}$ and $\boxed{q = r - 2}$

Write an equation to show the relationship between *p* and *r*. (3 marks)
(Write *p* =)

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13. Esha and Fran each spun a spinner with 8 numbers.

The table shows how many twos they spun.

	Esha	Fran
Total number of spins	50	70
Number of twos	7	11

Which person had the greater proportion of twos?

You *must* show your working. (2 marks)

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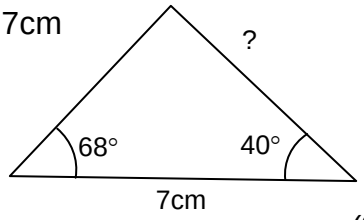
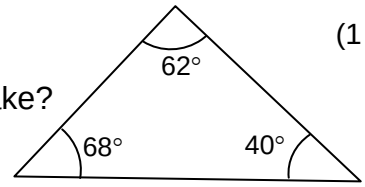
14. a) Draw an accurate triangle with a base of 7cm and two angles of 68° and 40° as shown.



Write down the length of the side of the triangle opposite the 68° angle. (2 marks)

b) Karen drew a triangle and measured the angles. The diagram shows her results. (1 mark)



How do you know that Karen made a mistake?

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15. a) $\boxed{£1 = 1.18 \text{ euros}}$

How much is £1.50 in euros? (1 mark)

b) $\frac{13}{16}$ is 0.8125 as a decimal

What is $\frac{29}{16}$ as a decimal? (1 mark)

16. On one day a dentist saw 25 people altogether.

14 of the 25 people were female.
8 of the 14 females were adults.
The dentist saw 4 male children.

Copy the table and fill it in to show this information.

	Male	Female
Adult		
Child		

(2 marks)

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17. Work out the following. Show your working.

a) 43 x 27

b) 458 ÷ 17 (3 marks)

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18. Solve the equations to find *n*.

a) $130 = n + 25$

b) $45 = 8n - 27$

c) $\frac{n}{7} = 22$ (3 marks)

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19. An equilateral triangle has sides of length

$4(x - 1)$, $(x + 8)$ and $(2x + 4)$.

a) Write an equation involving x (2 marks)

b) Solve the equation to find the value of x. (2 marks)

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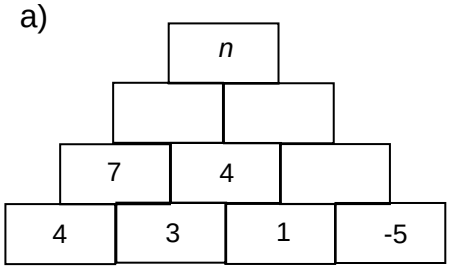
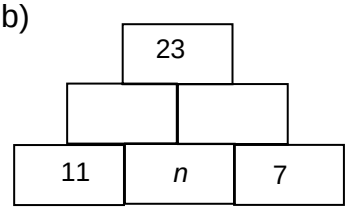
20. Number walls are formed by adding numbers next to each other to get the number above. Find *n* in these number walls.

a)



b)



(3 marks)