Test 1 **Essential Maths Book 8H Units 1 & 2**

No calculators

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1. Work out

a) $\frac{5}{9} - \frac{1}{2}$ (1 mark)

b) $3\frac{1}{2} \times \frac{3}{10}$ (1 mark)

c) $\frac{11}{15} \div \frac{1}{10}$ (1 mark)

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2. The diagram shows a shaded square inside a larger square.

Calculate the area of the shaded square.

(3 marks)

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3. Write an **estimate** for each calculation.
You must show your working.

a) $\frac{4098 - 511}{94.99}$ (1 mark)

b) $19.61^2 \times 107$ (1 mark)

c) 11.5% of £97.1 million (1 mark)

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4. The rule for the sequences below is

'multiply by 3 and add 1'

Copy each sequence and fill in the missing numbers.

a) [ ] [4] [13] [ ] (1 mark)

b) [3] [ ] [ ] [ ] (1 mark)

c) [ ] [ ] [7] [22] (2 marks)

5. a) Write down all the factors of 20. (1 mark)

b) Write down all the factors of 35. (1 mark)

c) Write down the highest common factor of 20 and 35. (1 mark)

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6. In this diagram the number in each box is found by adding the numbers in the two boxes underneath.

For example:

Copy each diagram and fill in the missing numbers.

a)

(2 marks)

b)

(3 marks)

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7. Write down which one below is equal to π .

The circumference of a circle divided by its radius.

The diameter of a circle divided by its circumference.

The circumference of a circle divided by its diameter. (1 mark)

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8. Find the angles marked by letters.

(1 mark)

(2 marks)

9. a) Work out 41 - (80 ÷ 5) (1 mark)

b) Write the missing signs (+, -, x, ÷) and brackets in the following.

i) 16 9 1 = 2 (2 marks)

ii) 2 8 10 5 = 20 (2 marks)

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10. Look at this list of numbers | 2 4 5 6 7 8 9 |

a) Add together all the prime numbers in the list. (1 mark)

b) Multiply together all the numbers which are factors of 18. (2 marks)

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11. a) What is the name of this kind of quadrilateral? (1 mark)

b) Work out the area of the quadrilateral. (2 marks)

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12. Write each statement with either > , < or = in the box.

a) - 7 ☐ - 8 + 1 (1 mark)

b) $(- 3)^2$ ☐ 4 (1 mark)

c) - 11 – (- 4) ☐ - 3 – 4 (1 mark)

13.

The circle has a diameter of 35cm. Work out the circumference of the circle. Take the value of $\pi = \frac{22}{7}$ (2 marks)

14. ABCD is a rectangle and
AD = AE = EB = CB.
You are given that angle AEB = 114°

Work out the size of angle DEC.
Show your working. (3 marks)

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15. A rectangular plot of land has an area of 3 hectares.
The length of the plot is 200 m.
Work out the width of the plot. (2 marks)

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16. Write each statement with a decimal point in the correct place.
Add zeros if you need to.

a)	The width of this sheet of paper.	2120 cm	(1 mark)
b)	The length of an average car.	385 m	(1 mark)
c)	The weight of a large apple.	151 kg	(1 mark)

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17. Here are three expressions.

A. $n + n + n + 5$

B. $4n \div 2$

C. $2(n + 1)$

a) Evaluate expression *A* when $n = -1$. (1 mark)

b) Simplify expression *B.* (1 mark)

c) What expression when added to expression *C* gives you 3n + 5 ? (2 marks)

d) What is the difference between an *equation* and an *expression*? (1 mark)

18. Write the following as decimal numbers.

a) 62% (1 mark)

b) $\frac{5}{8}$ (1 mark)

c) $\frac{2}{10^4}$ (1 mark)

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19. a) Work out 5% of 20 x $\sqrt{(4^1 + 3^2 + 2^3 + 1^4) + 14}$ (2 marks)

b) Increase £740 by 2% (2 marks)

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20. The table shows the results of a fitness test conducted at a school.

	Passed	Failed	Total
Boys		300	450
Girls			
Total		419	819

a) Copy and complete the table. (1 mark)

b) What percentage of the boys passed the test? (2 marks)

c) Of those who passed, what percentage were girls? (2 marks)

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21. On a clock, the tip of the seconds hand is 14cm from the centre of the clock.

At what speed does the tip of the seconds hand move?

[Take $\pi = \frac{22}{7}$] (3 marks)