Pearson Edexcel 2-Year Scheme of Work: Term 1 Assessment Higher Tier

Instructions

- The time for the test is 1 hour.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need*.
- Questions that require a calculator are marked with the symbol  .

Information

- The total mark for this paper is 50.
- The marks for **each** question are shown
  – *use this as a guide as to how much time to spend on each question*.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

1 Given that $529 \times 3.8 = 2010.2$ write a division with an answer of 5.29

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(1 mark)

2 Explain how you know that $3^7 + 2$ must be an odd number.

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(2 marks)

3 Jo chooses 3 whole numbers between 1 and 40.

The first number is a multiple of 4.

The second number is 6 less than the first number.

The third number is half of the second number.

The difference between the first and third numbers is 21.

What are the three numbers? Show your working.

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(3 marks)

4 Last year a particular make and model of car cost £14 500.

This year the same make and model costs £15 370.

Work out the percentage increase.

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(3 marks)

5 The nth term of an arithmetic sequence is $4n + 1$ where n is a positive integer.

a Is 95 a term in this sequence?

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(2 marks)

b Find an expression for the sum of the $(n – 1)$th and nth terms of this sequence.

Give your answer in simplest form.

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(2 marks)

c The sum of two consecutive terms in the sequence is 70.

Work out the larger of these two terms.

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(2 marks)

6 No cube number is a prime number.

Is this statement true or false?

Justify your answer.

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(2 marks)

7 Given that $5(x + k) = 4x + 20$ and that x is positive, show that $k < 4$.

(3 marks)

8 Two variables, X and Y, are in direct proportion.

The table shows corresponding values of X and Y.

X	10	35	Q
Y	18	P	9.9

a Work out the values of P and Q.

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(2 marks)

b Write a formula for Y in terms of X.

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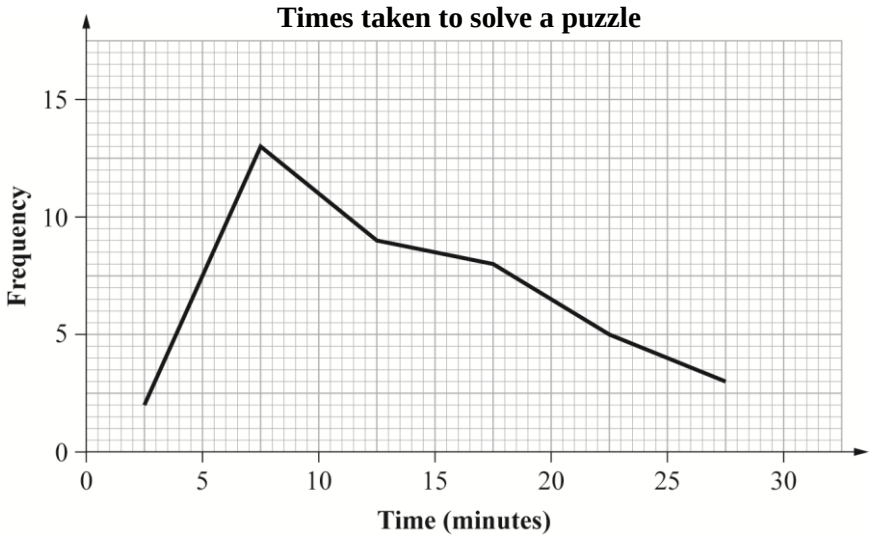
(1 mark)

9 Two schools, Avon and Thames, each enter 40 students into a maths challenge.

The students have to solve a puzzle and they are timed to see how long each student takes.

This is the frequency polygon showing the distribution of times taken for the 40 Avon students.



a Which time interval contains the median time for the Avon students?

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(1 mark)

b The frequency table shows the distribution of times for the 40 Thames students.

Time t (minutes)	Frequency
$0 < t \leq 5$	1
$5 < t \leq 10$	6
$10 < t \leq 15$	15
$15 < t \leq 20$	9
$20 < t \leq 25$	7
$25 < t \leq 30$	2

On the grid above, plot a frequency polygon for the times for the Thames students.

(2 marks)

c Compare the results for the two schools.

Which school performed better? Justify your answer.

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(3 marks)

10 Chris, Dave and Ed share £720 between them.

Chris receives £90 more than Dave.

The ratio of Chris's share to Dave's share is 7 : 5.

Work out the ratio of Ed's share to Dave's share.

Give your answer in its simplest form.

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(5 marks)

11 A cuboid has a width of x cm.

The length of the cuboid is 4 cm more than the width.

The height of the cuboid is 4 cm less than the width.

The volume of the cuboid is 500 cm³.

a Show that x satisfies the equation $x^3 - 16x = 500$

(2 marks)

b Solve $\dfrac{4}{3x+1} = 10$

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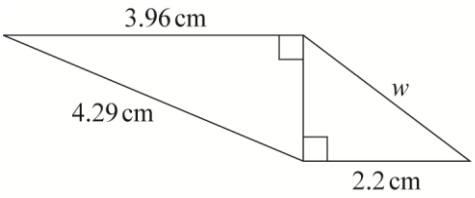
(3 marks)

12 Work out the length marked *w*.



Not drawn accurately

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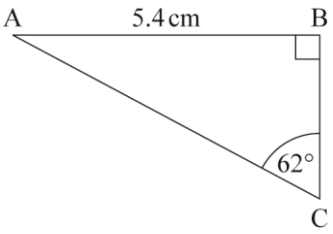
(5 marks)

13 ABC is a right-angled triangle.

AB = 5.4 cm and angle ACB = 62°

Calculate the length of BC.

Give your answer correct to 2 significant figures.



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(4 marks)

14 Prove that the product of two odd numbers is always odd.

(2 marks)

TOTAL FOR PAPER = 50 MARKS