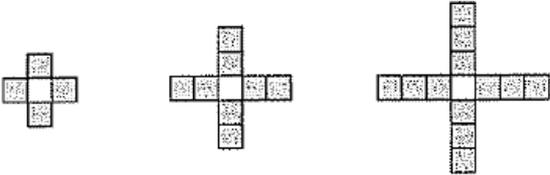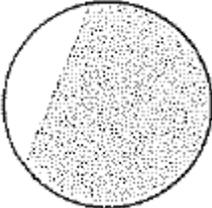Name: _____

Class: _____

Teacher: _____

Year 9

Set 5

Term 4

Homework Booklet

Week 1

1: Fill in the box to complete the calculation $$213 - \boxed{} = 129$$	C11: Find the circumference of a circle with a radius of 6 cm.
2: Write either a <, > or = between the two fractions. $$\frac{9}{14} \qquad \frac{13}{14}$$	C12: Find the area of a circle with a radius of 6 cm.
3: Calculate $$\frac{9}{55} + \frac{45}{55}$$	13: There are 8 classes in a year group. Each class has an average of p pupils in. Write an expression for the total number of pupils in the year group.
4: Calculate $\frac{9}{11} \times \frac{45}{55}$	14: Simplify $5s^2 + 8t^2 - 9s + 4t + 3s^2 - 6s - 12t^2 - 6t$
5: Sam and Meena share sweets in the ratio 4:5. They have 63 sweets in total. Work out how many sweets that Sam gets.	C15: Find the value of $8s - 5t$ when $s = 3$ and $t = -2$
C6: A box of 6 eggs costs £1.80. Work out how much a box of 10 eggs would cost.	16: Calculate √100 - 8 ÷ 2
7: Find the next two terms of this sequence 1, 5, 11, 19, ……., ……	17: Expand $-6(3s + 13t)$
8: Draw the next picture in this pattern	18: Factorise $3s - st$
9: Find the nth term of the sequence 4, 12, 20, 28, …	19: Solve the equation $3s + 9 = 11$
10: Write the name of this part of a circle	20: 13 x 6

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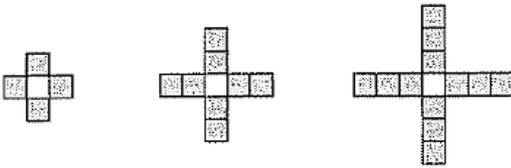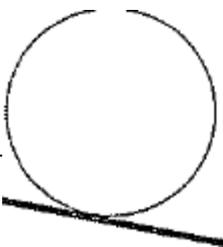
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Q1. What percentage of the students at BODMAS International School are currently boarding students?

Q2. You are told that 64 of the students hold passports from African countries, and that they are all boarding students. What percentage of boarding students *don't* come from an African country?

Week 2

1: Calculate 202 - 104	C11: Find the circumference of a circle with a diameter of 22 cm
2: Write either a <, > or = between the two fractions. $$\frac{3}{8} \qquad \frac{7}{8}$$	C12: Find the area of a circle with a diameter of 22 cm
3: Calculate $\dfrac{9}{21} + \dfrac{13}{21}$	13: A bag of BBQ coal contains b bricks. 40 of them are used for a BBQ. Write an expression for the number of bricks left in the bag.
4: Calculate $\dfrac{9}{14} \div \dfrac{13}{21}$	14: Simplify $3u - 5u^2 + 6u - 9u^2$
5: Sharif and Jose share money in the ratio 2:7. They have £81 in total. Work out how much Sharif gets.	C15: Find the value of $3u^2 - 2u$ when $u = 2$
C6: A 4 pint bottle of milk costs 89p. Work out how much a 6 pint bottle would cost.	16: Calculate $\frac{4 \times 12}{10 - 2}$
7: Find the next two terms of this sequence 3, 6, 11, 18, …….., ……	17: Expand $-3(2 - 5u)$
8: Find the total number of squares in the nth pattern	18: Factorise fully $4u^2 - 2u$
C9: Find the first 4 terms of the sequence with nth term $n^2 - n$	19: Solve the equation $12u - 5 = 3$
10: Write the name of this part of a circle	20: 14 x 8

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Q3. What is the maximum average speed of the shuttle bus to London Heathrow? What is the maximum and minimum average speed?

Q4. If the school's soccer pitches are all 98m long and 47m wide, what percentage of the campus area do they take up?

Week 3

1: Halve 332	C11: Find the circumference of a circle with a radius of 21 cm.
2: Write either a <, > or = between the two fractions. $\dfrac{2}{54}$　　　$\dfrac{36}{54}$	C12: Find the area of a circle with a radius of 21 cm.
3: Calculate $\dfrac{3}{24} + \dfrac{7}{24}$	13: The perimeter of a rectangle is double the sum of the length and width. Write an expression for the perimeter of a rectangle with a length of *l* and a width of *w*.
4: Calculate $\dfrac{3}{8} \times \dfrac{7}{24}$	14: Simplify $4v - 7 + v^2 + 9 - 3v + v^2 - 2 - v - 2v^2$
5: Sharif and Jose share money in the ratio 2:7. Jose gets £49. Work out how much Sharif gets.	C15: Find the value of $3v^2 - 5v + 2$ when $v = 2$
C6: A4 paper has a width of 21 cm and a length of 30 cm. A5 paper has a length of 21 cm. What is the width of A5 paper?	16: Calculate $9 + 2^2 \times 7$
7: Fill in the next two terms of this sequence 2, 6, 18, 54, ……, ……	17: Expand $-5(-4 - v)$
8: Find the total number of squares in the nth pattern 	18: Factorise fully $10v^2 + 15v$
9: Find the nth term of the sequence -2, 7, 16, 25, …	19: Solve the equation $4(2v - 1) = 36$
10: Write the name of this part of a circle 	20: 6 x 15

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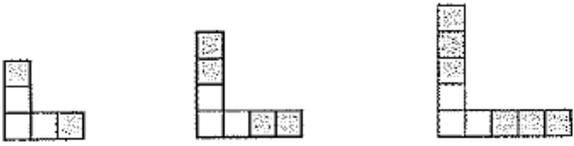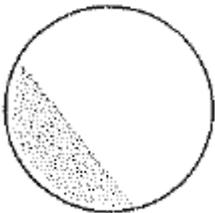
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Q5. The hockey pitch is 91.4m long and 55m wide. Because it is sometimes used for national competitions, it must also have a 3m strip all the way around the pitch (called a run-off strip) for safety purposes. What is the total area taken up by the hockey pitch, in m² to 2sig figs?

Q6. The ratio of male to females among the teaching staff is 5:3. How many women teach at the school?

Week 4

1: Calculate $82 \div 1000$	C11: Find the circumference of a circle with a diameter of 14 cm.
2: Write either a <, > or = between the two fractions. $$\frac{5}{18} \qquad \frac{2}{18}$$	C12: Find the area of a circle with a diameter of 14 cm.
3: Calculate $\dfrac{43}{54} - \dfrac{36}{54}$	13: The area of a triangle is given by the base multiplied by the height and then divided by 2. Write an expression for the area of a triangle with a base of b and a height of h.
4: Calculate $\dfrac{2}{3} \div \dfrac{36}{54}$	14: Simplify $8w^2 - 6x^2 + 3w - 9x + 2w^2 - 4x^2 + 5x - 7w$
5: Sharif and Jose share money in the ratio 2:7. Jose gets £25 more than Sharif. Work out how much Sharif gets.	C15: Find the value of $x - w$ when $x = -2$ and $w = -4$
C6: Light takes 8 minutes to travel 150 million kilometres from Sun to Earth. How long would it take light to travel 780 kilometres from the Sun to Jupiter.	16: Calculate $30 - 2 \times 4^2$
C7: Find the next two terms of this sequence 112, 28, 7, ……, ……	17: Expand $-(5x + 4)$
8: Find the total number of squares in the nth pattern 	18: Factorise fully $6xw - 3w^2$
C9: Find the first 4 terms of the sequence with nth term $2n^2$	19: Solve the equation $5x - 4 = 3x + 2$
10: Write the name of this part of a circle 	20: 12 x 14

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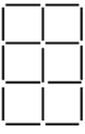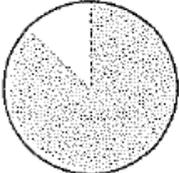Basic school tuition fees (in £) for non-boarding students are as in the table below:

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Q7. 9 female teachers have higher degrees. Show that this represents a greater proportion than for male teachers.

Q8. How much time in the school day (0800 to 1610) is set aside for breaks?

Week 5

1: Fill in the box to complete the calculation $154 \div \boxed{} = 11$	C11: Find the circumference of a circle with a radius of 25 cm.
2: Write either a <, > or = between the two fractions. $\dfrac{12}{15} \qquad \dfrac{8}{15}$	C12: Find the area of a circle with a radius of 25 cm.
3: Calculate $\dfrac{5}{72} + \dfrac{23}{72}$	13: The pressure an object exerts is given by the force it exerts divided by the area that is exerts over. A rectangular object with length *l* and width *w* exerts a force of *F*. Write an expression for the force it exerts.
4: Calculate $\dfrac{5}{18} \times \dfrac{23}{72}$	14: Simplify $13y - 3z^2 + 2y^2 - 7z$
5: Sharif and Jose share money in the ratio 2:7. Sharif gets £15. Work out how much Jose gets.	15: Find the value of $13y - 3z^2 + 2y^2 - 7z$ when $y = 2$ and $z = 3$
C6: Pain signals in the nervous system travel at approximately 2 feet per second. Approximately how long does it take pain signals from a stubbed toe to reach the brain? State the assumption you make in solving the problem.	16: Calculate $7 + \sqrt{8 \times 18} - 9$
C7: Find the next two terms of this sequence 1296, 216, 36, ……, ……	17: Expand $-(3z - 7y - 5)$
8: Find the total number of matchsticks in the nth pattern 	18: Factorise fully $15yz^2 + 25y^2z$
9: Find the nth term of the sequence 12, 7, 2, -3, …	19: Solve the equation $3y + 20 = 12 - y$
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Q9. The auditorium is used for a special concert. All the teachers are in attendance, as well as half of the support staff. What is the maximum number of students that can attend the concert?

Q10. The Potter family sends their two children to the school. Harry is in Year 11 and boards at the school, while Beatrix is in Y8 and doesn't board. What yearly school fees do the Potters have to pay?

Week 6

1: Double 267	11: What translation transforms the coordinate (3, 1) to the coordinate (5, 4)?
2: Calculate $\dfrac{3}{7} + \dfrac{2}{7}$	12: Give the image of the coordinate (4, 3) when it is reflected in the line $y = 4$
C3: Share £68 in the ratio 1:3	13: A square of side length 3 cm is enlarged scale factor 4. Work out the side length of the image square.
4: Find the nth term of the sequence 9, 17, 25, 33, …	C14: Calculate 64% of £720
C5: Find the circumference of a circle with diameter 6 cm.	15: Increase £80 by 10%
6: Simplify $8a + 3 - 2a - 7$	16: Convert 0.18 into a percentage.
7: Expand $5(2x - 5)$	17: A coordinate (3, a) lies on the line $y = 5$. Write down the value of a.
8: Solve the equation $4x - 3 = 13$	18: Describe the straight line $x = 5$.
C9: A bunch of 5 bananas weighs 2.7 kg. Work out the mean average weight of a banana.	19: Write the integers that satisfy the inequalities $x < 5$
10: What is the lowest score any pupil achieved? A class is given a spelling test. There are ten words. Here are the results.	20: 14 x 16

10:

Score	4	5	6	7	8	9	10
Frequency	1	4	5	8	9	1	2

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Q11. Herr Winkler, from Germany, is about to take up a new job in the UK. He wishes to bring his three children with him. They are triplets and would be the right age to join Year 10. They wouldn't board at the school. Herr Winkler is somewhat unfamiliar with UK pounds, and wants to know what the yearly school fees would be in euros. The exchange rate is currently £1 = €1.18 How many euros would Herr Winkler have to pay if he has his three children educated at BODMAS International School?

Q12. If each lane in the swimming pool is 2.5m wide, and there is a uniform depth of 1.8m throughout the pool, what volume of water does the swimming pool hold?