

Name	
Form	
Teacher	

Maths

Homework Booklet

Year 9 Summer 2

Set 1,2,3

Topic	Score achieved	Sparx %
1:Percentage problem solving	/8	%
2:Revision	n/a	%
3:Simplifying a ratio	/18	%
4: Speed, Distance, Time	/12	%
5: Density	/10	%
6: Sample Space	/21	%
7:Probability	/10	%



Week 1

Question 1: In January, a puppy weighed 4kg.
Three months later, the same puppy weighed 5kg.
What was the percentage increase in the puppy's weight?



Question 2: The number of TVs sold increased from 50 to 60.
Work out the percentage increase.



Question 3: Peter's weight decreases from 80kg to 72kg
Calculate the percentage decrease in Peter's weight.



Question 4: A car is travelling at 40 kilometres per hour.
The car increases its speed to 56 kilometres per hour.
Calculate the percentage increase in the speed of the car.



Question 5: Keira buys a coffee table for £120 and sells it for £204.
Work out her percentage profit.



Question 6: Daisy bought a car for £20,000.
She sold the car for £15,000.
Work out the percentage loss.



Question 7: The population of an island in 2017 was 30,000.
In 2018, the population was 31,500.
Calculate the percentage increase.



Question 8: Rebecca bought a dress for £80.
She later sold it for £116.
Find the percentage profit.



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Week 2

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Week 3

Question 1:

- | | |
|---------------------------------|---|
| (a) Share £20 in the ratio 2:3 | (b) Share 15cm in the ratio 1:2 |
| (c) Divide £24 in the ratio 1:3 | (d) Share 35 sweets in the ratio 4:3 |
| (e) Divide 55g in the ratio 3:2 | (f) Divide 54kg in the ratio 1:5 |
| (g) Share £210 in the ratio 2:5 | (h) Share 120 hours in the ratio 5:7 |
| (i) Share 350m in the ratio 3:7 | (j) Divide 360° in the ratio 1:4 |

Question 2:

- | | |
|-----------------------------------|---------------------------------------|
| (a) Share £104 in the ratio 3:5 | (b) Divide 161 miles in the ratio 6:1 |
| (c) Divide 315ml in the ratio 2:7 | (d) Share \$650 in the ratio 4:9 |
| (e) Share £800 in the ratio 11:14 | (f) Share 1200kg in the ratio 3:37 |
| (g) Divide €510 in the ratio 13:2 | (h) Share 1116mm in the ratio 1:8 |

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Week 4

Question 1: Calculate the average speeds for each of the following, without using a calculator.

- | | |
|---|--|
| (a) A car travels 60 miles in 2 hours | (b) A lorry travels 120 miles in 3 hours |
| (c) A cyclist travels 45 miles in 5 hours | (d) A jogger travels 30km in 4 hours |
| (e) A runner runs 100 metres in 10 seconds | (f) A car travels 195 miles in 3 hours |
| (g) A helicopter travels 425 miles in 5 hours | (h) A helicopter flies 840 miles in 7 hours |
| (i) A dog runs 216 metres in 12 seconds | (j) An airplane travels 984 miles in 6 hours |
| (k) A bird flies 19 miles in 2 hours | (l) A car travels 600km in 8 hours |

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Week 5

Question 1: Work out the density of each of the following.
State the units of each answer.

- (a) A piece of wood has a mass of 7g and a volume of 10cm^3
- (b) A rod of aluminium has a mass of 575.4g and a volume of 210cm^3
- (c) A piece of nickel has a mass of 3.48kg and a volume of 400cm^3
- (d) An iron statue with volume of 0.05m^3 and a mass of 394kg
- (e) 2.1m^3 of oil with a mass of 1775kg

Question 2: Work out the mass of each of the following.
State the units of each answer.

- (a) A statue with a volume of 120cm^3 made from ceramic which has a density of 2g/cm^3 .
- (b) A rod with a volume of 50cm^3 made from copper which has a density of 8.9g/cm^3 .
- (c) A block with a volume of 1.8m^3 made from silver which has a density of 10490kg/m^3
- (d) A statue with a volume of 3m^3 made from zinc which has a density of 7.14g/cm^3
- (e) 2800cm^3 of butter which has a density of 911kg/m^3

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Week 6

Question 1: Two fair six sided dice are rolled.
The numbers on the two dice are **added** together to give a score.
The table shows all possible scores.



- (a) Which score is the most likely?
- (b) Which scores are the least likely?
- (c) Write down the probability of scoring a
- (i) 3 (ii) 5 (iii) 6 (iv) 7
- (d) Write down the probability of scoring a number
- (i) over 10 (ii) under 7 (iii) 4 or less (iv) 6 or more

		Dice 1					
Dice 2	+	1	2	3	4	5	6
	1	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10
	5	6	7	8	9	10	11
	6	7	8	9	10	11	12

- (e) Write down the probability of scoring
- (i) an odd number (ii) a square number (iii) a prime number

Question 2: Two fair six sided dice are rolled.
The numbers on the two dice are **multiplied** together to give a score.

- (a) Complete the table to show all possible scores.
- (b) Write down the probability
- (i) 10 (ii) 9 (iii) 12 (iv) 8
- (c) Write down the probability of scoring
- (i) an even number (ii) an odd number
- (iii) a number less than 20

		Dice 1					
Dice 2	x	1	2	3	4	5	6
	1						
	2						
	3						
	4						
	5						
	6						

Sparx – Homework Answers



Week7

Question 1: An ordinary coin is thrown 50 times.
Barry says "I am going to get heads 25 times and tails 25 times."
Explain why he could be wrong.

Question 2: A coin is thrown 30 times.
The coin lands on tails 20 times.
What is the relative frequency of the coin landing on tails?

Question 3: A dice is rolled 50 times.
It lands on six 37 times.
(a) Write down the relative frequency of the dice landing on a six.

Robyn says "the dice is biased towards landing on a six."
(b) Do you think the dice is biased? Explain your answer.

Question 4: Jessica wants to test if a coin is biased.
She throws the coin 24 times.

T T H H T H H H T H T T
T H H T T H H T H H H T

(a) Complete the relative frequency table.

	Heads	Tails
Relative frequency		

(b) Do you think the coin is biased? Explain your answer.

Question 5: A biased dice is rolled 30 times.



3 4 1 3 6 2 6 6 6 5 6 3 6 4 6
1 6 3 4 6 6 2 6 3 6 6 3 6 3 6

(a) Complete the relative frequency table

Number	1	2	3	4	5	6
Relative Frequency						

(b) Do you think the dice is biased? Explain your answer.

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