

WJEC MATHEMATICS

HIGHER
3 TIER TOPICS

RATIO AND PROPORTION

@MrGoreMaths.

Spec 1 – Maths – P1

4. (a) Calculate the largest share when £400 is shared in the ratio 1 : 2 : 5. [2]

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Nov 2016 – Maths – P1

10. The radius of a hemisphere and the radius of a cylinder are equal.
The hemisphere and cylinder have equal volumes.

Calculate the ratio of the height of the cylinder to the radius of the cylinder. [3]

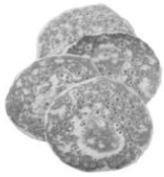
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height of cylinder : radius of cylinder

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Spec 2 – Numeracy – P1

1. You will be assessed on the quality of your organisation, communication and accuracy in writing in this question.

Ingredients to make 4 pancakes	
	55 g plain flour
	1 egg
	100 ml milk
	37.5 ml water
	25 g butter

Useful information: metric and imperial units
25 ml of milk or water is approximately 1 fluid ounce

Owen works in a school kitchen.
He uses the recipe information for pancakes shown above.
He has measured out the plain flour, milk and butter and placed them with the eggs in a large bowl.
Owen measures out 150 fluid ounces of water to add to his other pancake ingredients in the bowl.
How many pancakes is Owen making?

[3 + OCW 2]

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Nov 2016 – Numeracy - P1

2. (a)



Lotty and Rafael decide to enter a prize draw.
They agree to share any money they win in the ratio 2 : 3 respectively.
After winning a total of £2000, they think again and decide that Lotty's share should be increased by 30%.

- (i) Rafael thinks that his share will be reduced by 30%.
Without any calculation, explain why Rafael's thinking is incorrect. [1]

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- (ii) Calculate the amount of money Lotty wins after the decision is made to increase her share. [4]

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- (iii) Find the ratio that is now used to share the money between Lotty and Rafael.
Express your answer in its simplest form.

[3]

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Lotty's winnings : Rafael's winnings = :

Nov 2016 – Numeracy – P2

5. Rhodri has carried out an experiment to measure the diameters of 20 spherical dust particles, in microns.

Here are his results.

Diameter, d (microns)	Frequency
$1 \leq d < 2$	2
$2 \leq d < 4$	6
$4 \leq d < 5$	8
$5 \leq d < 9$	4

- (ii) Rhodri measures the diameters of another 25 dust particles.

Rhodri is told,

'The ratio of dust particles with diameters less than 4 microns to those with diameters greater than or equal to 4 microns is 7 : 8.'

He finds this fact is true when he considers all 45 dust particles.

How many of the extra 25 dust particles have a diameter of less than 4 microns?

You must show your working. [3]

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June 2017 – Numeracy – P1

1.



- (a) Jasmine entered herself, Sophie and Bryn as a group in a talent contest. Bryn only had a minor part.

Bryn, Sophie and Jasmine won the contest. They shared the prize money in the ratio 2 : 6 : 7, with Bryn getting the smallest share. Jasmine won £560, the largest share.

How much money did Bryn and Sophie each win? [4]

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Bryn receives £

Sophie receives £

June 2017 – Numeracy – P1

8. On a new housing estate, teams of painters paint the walls and ceilings of houses once they are built.

(a) It takes a team of 5 painters 10 hours to paint a house that has a total wall and ceiling area of 500 m².

A new house on the estate has a total wall and ceiling area of 600 m².
This house has to be painted in 8 hours.

Calculate the least number of painters needed.
You must show all your working.

[4]

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(b) What assumption have you made in answering part (a)?

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