

Ratio, Proportion and Rates of Change **Maths Activities**

A01 Using and Applying

6 litres of lemonade cost £14.50.

1

What do 8.4 litres cost?

Share £230 in the ratio 2:5:33

2

If 1 mile is approximately 1.6km, how many kilometres is 62 miles?

3

A02 Reasoning and Fluency

Tim and Neil are both plumbers. Neil charges £152 labour for a job that takes 5 hours. Tim charges £312 for a job that takes 12 hours.

1

Who will earn more for a job that takes 15 hours?

Billy buys a camera for £84. On holiday, he sees the camera on sale for €110. On that day the exchange rate is £1:€1.15.

2

Would Billy have saved money if he had bought his camera on holiday?

Rachel wants to make some shortbread. She needs to mix flour, butter and sugar in the ratio 3:2:1 by weight.

3

Rachel wants to make 750g of shortbread. She has 400g of butter, 200g of flour and 150g of sugar.

Does Rachel have enough of each ingredient to make the shortbread?

A03 Problem Solving

At the local secondary school, there are 180 Year 11 students. 70% of them will be staying on to attend the sixth form college. Of those staying on, the ratio of boys to girls is 6:8. Of those leaving at the end of the year, the ratio of boys to girls is 5:4.

1

How many more boys are staying on than leaving?

Two cars are travelling at 100km per hour. A safe braking distance is to stay 2 seconds behind the car in front of you.

2

If two cars are 40 metres apart, do they have a safe braking distance between them?

Two angles in a quadrilateral are 60° and 90° . The sizes of the other two angles are in the ratio of 2:3.

3

What are the missing angles?

Ratio, Proportion and Rates of Change **Maths Activities Answers**

A01 Using and Applying	$(£14.50 \div 6) \times 8.4 =$ £20.30	$2 + 5 + 33 = 40$ $£230$ (divided by) $40 = 5.75$ £11.50:£28.75:£189.75	$62 \times 1.6 = 99.2\text{km}$	
	A02 Reasoning and Fluency	$Neil = £152 \div 5 =$ £30.40 per hour $Tim = £312 \div 12 =$ £26 per hour $Neil (15 \text{ hours}) = £30.40 \times$ $15 = £456$ $Tim (15 \text{ hours}) = £26 \times 15$ $= £390$ Neil will earn more.	$110 \text{ euros} \div 1.15 =$ £95.65 No, Billy's camera was cheaper in the UK.	$3 + 2 + 1 = 6$ $750\text{g} \div 6 = 125\text{g}.$ Ratio Flour:Butter:Sugar 375g:250g:125g She doesn't have enough butter.
		A03 Problem Solving	$0.7 \times 180 =$ 126 students staying on Staying on $6 + 8 = 14$ $126 \div 14 = 9$ Boys:Girls = 54:72 Leaving $180 - 126 = 54$ $5 + 4 = 9$ $54 \div 9 = 6$ Boys:Girls = 30:24 Difference is 24 boys.	$100 \text{ km/h} =$ $\frac{100 \times 1000}{60 \times 60} = 27.8\text{m/s}$ $\frac{40}{27.8} = 1.4 \text{ seconds which is less than 2 seconds.}$ They do not have a safe braking distance