Using ratio tables - Worksheet

Solve each of these problems using a ratio table.

Direct proportion

1)	4kg of potatoes costs £3. Work out the cost of 7kg of potatoes.
2)	Here is a list of ingredients for making 12 cupcakes: 120g butter 120g sugar 2 eggs 120g self-raising flour Sandeep wants to make 15 cupcakes. How much butter should he use?
3)	A shop in England sells a coat for £50. The same coat is on sale in a shop in France for 60€. The exchange rate is £1 = 1.20€. Annabel says: “The coat is cheaper in England.” Is she correct?

Percentages

1)	Write 36 out of 60 as a percentage.
2)	Decrease £430 by 15%.
3)	A house increases in value to £240,000. This is an increase of 20%. Find the original value of the house.

Using ratio tables - Worksheet

Ratio

1)	Write down the ratio of £120 to £40. Give your answer in its simplest form.
2)	Beth, Peter and Angela share £65 in the ratio 2:3:8. How much money does Angela get?
3)	A bag of sweets contains strawberry, blackcurrant and orange sweets. The ratio of strawberry sweets to blackcurrant sweets is 7:3. The ratio of blackcurrant sweets to orange sweets is 4:9. The bag contains less than 140 sweets. What is the maximum number of orange sweets in the bag?

Compound measures

1)	Axel travels a distance of 70km from Manchester to Leeds. He leaves at 10am and arrives at 11:20am. Calculate his average speed in km/h.
2)	The density of air is approximately 1.3kg/m^3. Calculate the mass of 16m^3 of air.
3)	A box placed on a table exerts a force of 50N. The pressure on the table due to the box is 200N/m^2. Find the area of the box that is in contact with the table.

Using ratio tables - Answers

Please note that the ratio table given for each problem is one of many possible solutions, and students may take an alternative route.
Values in **bold** indicate information given in the question.
Values in **purple** indicate solutions.
Greyed-out sections of the table indicate areas that are not necessary to arrive at a solution, but you may see students filling these in anyway.

Direct proportion

1)

Weight (kg)	**4**	2	1	7
Cost (£)	**3**	1.50	0.75	**5.25**

7kg of potatoes costs £5.25.

2)

Butter (g)	**120**	10	30	**150**
Cupcakes	**12**	1	3	15

Sandeep needs 150g of butter.

3)

£	**1**	10	**50**
€	**1.20**	12	**60**

Annabel is incorrect - the coat costs the same in England and France.

Using ratio tables - Answers

Percentages

1)

36	18	6	**60**
60	30	10	100

36 out of 60 as a percentage is 60%.

2)

£	**430**	43	21.50	64.5	**365.50**
%	**100**	10	5	15	85

£430 decreased by 15% is £365.50

3)

£	**240,000**	20,000	200,000
%	**120**	10	100

The house originally cost £200,000

Using ratio tables - Answers

Ratio

1)

120	12	**3**
40	4	**1**

The required ratio is 3:1

2)

Beth	**2**	4	8	10
Peter	**3**	6	12	15
Angela	**8**	16	32	**40**
Total	13	26	52	**65**

Angela receives £40.

3)

Strawberry	**7**		28	56	
Blackcurrant	**3**	**4**	12	24	
Orange		**9**	27	**54**	
Total			67	134	

The bag contains 54 orange sweets.

Using ratio tables - Answers

Compound measures

1)

Distance (km)	**70**	35	17.5	**52.5**
Time (mins)	**80**	40	20	60

Axel travels at an average speed of 52.5km/h.

2)

Mass (kg)	**1.3**	5.2	10.4	**20.8**
Volume (m^3)	**1**	4	8	16

$16m^3$ of air has a mass of 20.8kg.

3)

Force (N)	**200**	100	50
Area (m^2)	**1**	0.5	**0.25**

The area of the box in contact with the table is $0.25m^2$.