

UNIT 7 *Ratio and Proportion*

Activities

Activities

7.1 Price Ratios

7.2 Page Sizes

Notes and Solutions (1 page)

ACTIVITY 7.1

Price Ratios

You can buy many products (particularly food) in a range of sizes. We usually assume that the larger the size, the better the value.

- 1. Why do you expect to get better value with larger sizes?
How can you find out which size is the best value?

In supermarkets, you will often find that the price per unit (e.g. per gram or per ml) is given (often in small print) on the shelf price label.

For example, the drink 'Sunny Delight' is sold in a range of sizes. The data in the table opposite was obtained from a supermarket.

	<i>Volume</i>	<i>Price</i>
	200 ml	26p
2. For each size, work out (to the nearest penny) the price per 1 ml, and then per 100 ml.	500 ml	50p
	1500 ml	£1.20
3. (a) Using the price for the 200 ml size drink, calculate how much you would pay for each of the other sizes if the prices were in the same ratio.	3000 ml	£2.10
(b) Similarly, using the price for the 3000 ml size drink, calculate how much you would pay for each of the other sizes, if the prices were in the same ratio.		

Extension

Go to your local supermarket and undertake a similar analysis of other products which can be bought in different sizes (e.g. washing powder, frozen peas, baked beans, coffee, etc.). Can you find any products where it is *not* more economic to buy the largest size?

ACTIVITY 7.2

Page Sizes

The UK adopted the European sizes for paper some time ago!

Paper is now usually produced and sold in the sizes

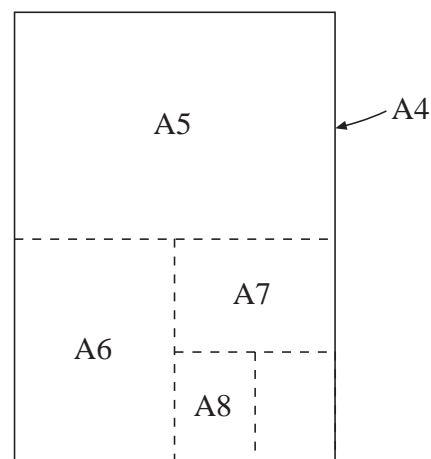
A0, A1, A2, . . . , A10

You are probably familiar with the A4 size, which is the usual size for photocopying paper; A5 is half the size of A4; A6 half the size of A5, etc: the sketch below illustrates these facts.

1. Measure the width and length of an A4 sheet of paper to the nearest millimetre.
2. From your A4 sheet of paper, accurately cut out

A5, A6, A7, A8, A9 and A10

 sizes of paper. For each size, measure the width and length to the nearest millimetre.
3. Calculate the ratio of length : width for each size.
 What do you notice?
4. What is the relationship between the length of A4 and width of A5, length of A5 and width of A6, etc ?



Extension

Deduce the dimensions of an A0 size of paper.

ACTIVITY 7.1 - 7.2

Notes for Solutions

Notes and solutions given only where appropriate.

7.1 2. 13p, 10p, 8p, 7p

3. (a) 65p, £1.95, £3.90

(b) 14p, 35p, £1.05

7.2 1. and 2. Approximate sizes are:

<i>A</i>	<i>Length (mm)</i>	<i>Width (mm)</i>
4	297	210
5	210	148
6	148	105
7	105	74
8	74	52
9	52	37
10	37	26

3. Constant ratio of about 1 : 1.4 (in fact, 1 : $\sqrt{2}$).

4. Length of A4 : width of A5 = 2 : 1

Length of A5 : width of A6 = 2 : 1

Extension

Using $\sqrt{2}$ as the ratio, the dimensions are 1188 mm and 840 mm.