

National 5 Mathematics

Similar Figures - Solutions - 2014-2017

Marks are indicated in brackets after each question number

2014 Paper 2 Question 5, (3)

$$\text{Linear scale factor} = \frac{24}{15}$$

$$\text{Volume scale factor} = \left(\frac{24}{15}\right)^3$$

$$\text{Volume of the larger jar} = 750 \times \left(\frac{24}{15}\right)^3 = 3,072 \text{ cm}^3$$

2015 Paper 2 Question 9, (4)

$$\text{Linear Scale Factor} = \frac{30}{24} = 1.25$$

$$\text{Area Scale Factor} = (1.25)^2 = 1.5625$$

$$\text{Area of } PSR = 1.5625 \times 400 = 625 \text{ cm}^2$$

$$\text{Area of } PSTQ = 625 - 400 = 225 \text{ cm}^2$$

2016 Paper 2 Question 11, (3)

$$\text{Linear scale factor} = \frac{60}{100} = 0.6$$

$$\text{Area scale factor} = 0.6^2 = 0.36$$

$$\text{Cost} = £13.75 \times 0.36 = £4.95$$

2017 Paper 1 Question 15, (3)

$$\text{Linear scale factor} = \frac{5}{7}$$

Set up as a 'reduction' to give

$$x = \frac{5}{7} \cdot (x + 2.6)$$

$$7x = 5(x + 2.6)$$

$$7x = 5x + 13$$

$$2x = 13, x = 6.5 \text{ cm}$$