

Wood Manufacturing & Finishing Ratio

Phase 4

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Ratio

- A ratio is a comparison of two numbers.
- If there were 30 chairs in a room 12 were red and 18 were blue you would say that the ratio of red chairs to blue chairs was 12 to 18.
- Ratio can be expressed in a number of ways:
- 12 to 18
- 12:18
- $\frac{12}{18}$

Ratio

- Calculating falls and rises
- E.g: If a flat roof has a fall of 1:38 and a span of 3.6m calculate the rise of the roof.
- This will mean that for every 38 mm you go across you rise 1mm.
- $3600 \div 38 = 94.73$
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Ratio to calculate rise or fall

- Q1. If a flat roof has a fall of 1:40 and a span of 3m calculate the rise of the roof.
- Answer
- $3000 \div 40 = 75$
- 75mm = rise

- Q2. A sewerage pipe is laid with a fall of 1:20. Calculate the fall of the pipe over 4m.
- Answer
- $4000 \div 20 = 200$
- 200mm = fall

Using ratios to solve problems

- **Example:**

€300 is divided between Alan & John in the ratio of **3:2**.

- To solve this type of question you must **add** together the numbers in the ratio to find how many parts there are, **divide** by the number of parts to find the value of 1 part, then **multiply** by the number of parts you want to calculate.
- First **add** together the number of parts in the ratio: $3 + 2 = 5$
- **Divide** to find out how much 1 part will be: $€300 \div 5 = €60$
- To find Alan's share **multiply** $€60 \times 3 = €180$
- John's share is $€60 \times 2 = €120$

Using ratios to solve problems

- **Q1.** A batch of concrete has been mixed in the ratio of 2 : 5 : 8 (cement : sand : gravel)
- The total weight of the dry mix is 825Kg
- Calculate the weight of each part.
- **Answer**
- $2 + 5 + 8 = 15$ $825 \div 15 = 55$
- Cement : 2 parts $2 \times 55 = 110\text{Kg}$
- Sand : 5 parts $5 \times 55 = 275\text{Kg}$
- Gravel : 8 parts $8 \times 55 = 440\text{Kg}$

Using ratios to solve problems

- **Q2.** A batch of concrete has been mixed in the ratio of 1.5 : 5 : 4
(cement : sand : gravel)
- The total weight of the weight mix is 630Kg.
- 1/5 of the total weight is water
- Calculate the weight of each of the 4 parts.
- **Answer**
- $(1.5 : 5 : 4) \times 2 = 3 : 10 : 8 = 21$ parts
- Find the weight of the water $630 \div 5 =$ Water weighs 126Kg
- Subtract the weight of the water $630 - 126 = 504$ Kg
- $504 \div 21 = 24$ 1 part = 24Kg
- Cement : 3 parts $24 \times 3 = 72$ Kg
- Sand : 10 parts $24 \times 10 = 240$ Kg
- Gravel : 8 parts $24 \times 8 = 192$ Kg