Wood Manufacturing & Finishing Ratio

Phase 6

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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 expresses in a number or ways:
- 12 to 18
- 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 ÷ 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 ÷ 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 ÷ 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 ÷ 5 = €60
- To find Alan's share **multiply** €60 x 3 = €180
- John's share is €60 x 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 ÷ 15 = 55
- Cement : 2 parts 2 x 55 = 110Kg
- Sand : 5 parts 5 x 55 = 275Kg
- Gravel : 8 parts 8 x 55 = 440Kg

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. One fifth of the total weight is water.
- Calculate the weight of each of the 4 parts.
- **Answer**
- (1.5 : 5 : 4) x 2 = 3 : 10 : 8 = 21 parts
- Find the weight of the water 630 ÷ 5 = Water weighs 126Kg
- Subtract the weight of the water 630 – 126 = 504Kg
- 504 ÷ 21 = 24 1 part = 24Kg
- Cement : 3 parts 24 x 3 = 72Kg
- Sand : 10 parts 24 x 10 = 240Kg
- Gravel : 8 parts 24 x 8 = 192Kg