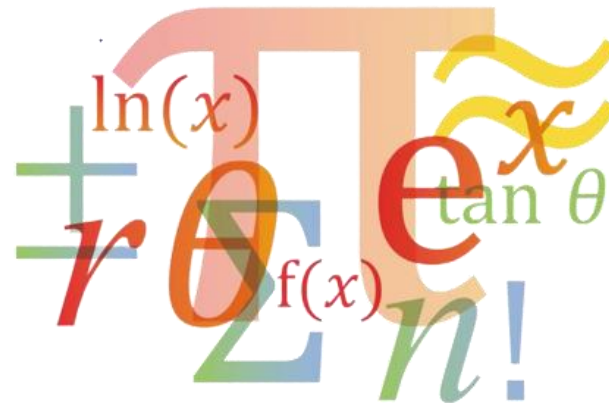




# Chapter 23:

## Ratio and Proportion



# Two examples

## Example 1

Simplify 28:42 giving your answer in its simplest form.

What multiplication table are they in?  
2, 7 and 14

Divide by the biggest one.

**Answer: 2:3**

## Example 2

Write the ratio  
2 hours: 40 minutes  
in its lowest terms.

Convert to the same unit,  
in this case, minutes:  
120 minutes: 40 minutes

Table? 2, 4, 5, 10, 20, 40

Divide by the biggest one.

**Answer: 3:1**

# Some simplifying questions:

Simplify these ratios, giving your answers in its lowest terms.

1. 25:35

2. 21:14

3. 36:48

4. 27:15

5. 5cm:1m

6.  $1\frac{1}{2}$  hours: 1 day

Answers:

1. 5:7

2. 3:2

3. 3:4

4. 9:5

5. 1:20

6. 1:16

# Example3: Divide 24 into the ratio 1:3

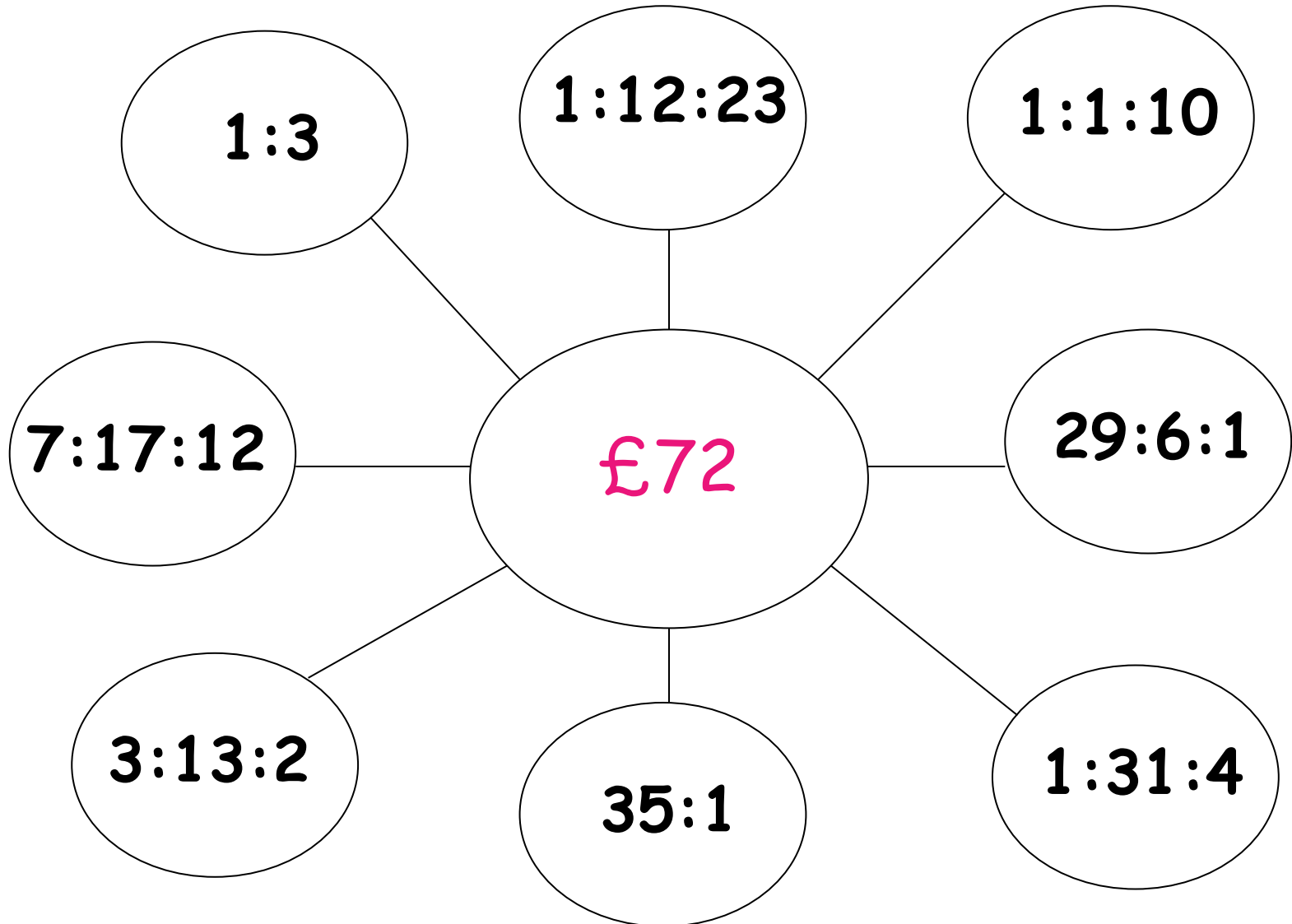
Add: Add the portions together  $1 + 3 = 4$

Divide: Your answer into the quantity to be shared  $\frac{24}{4} = 6$

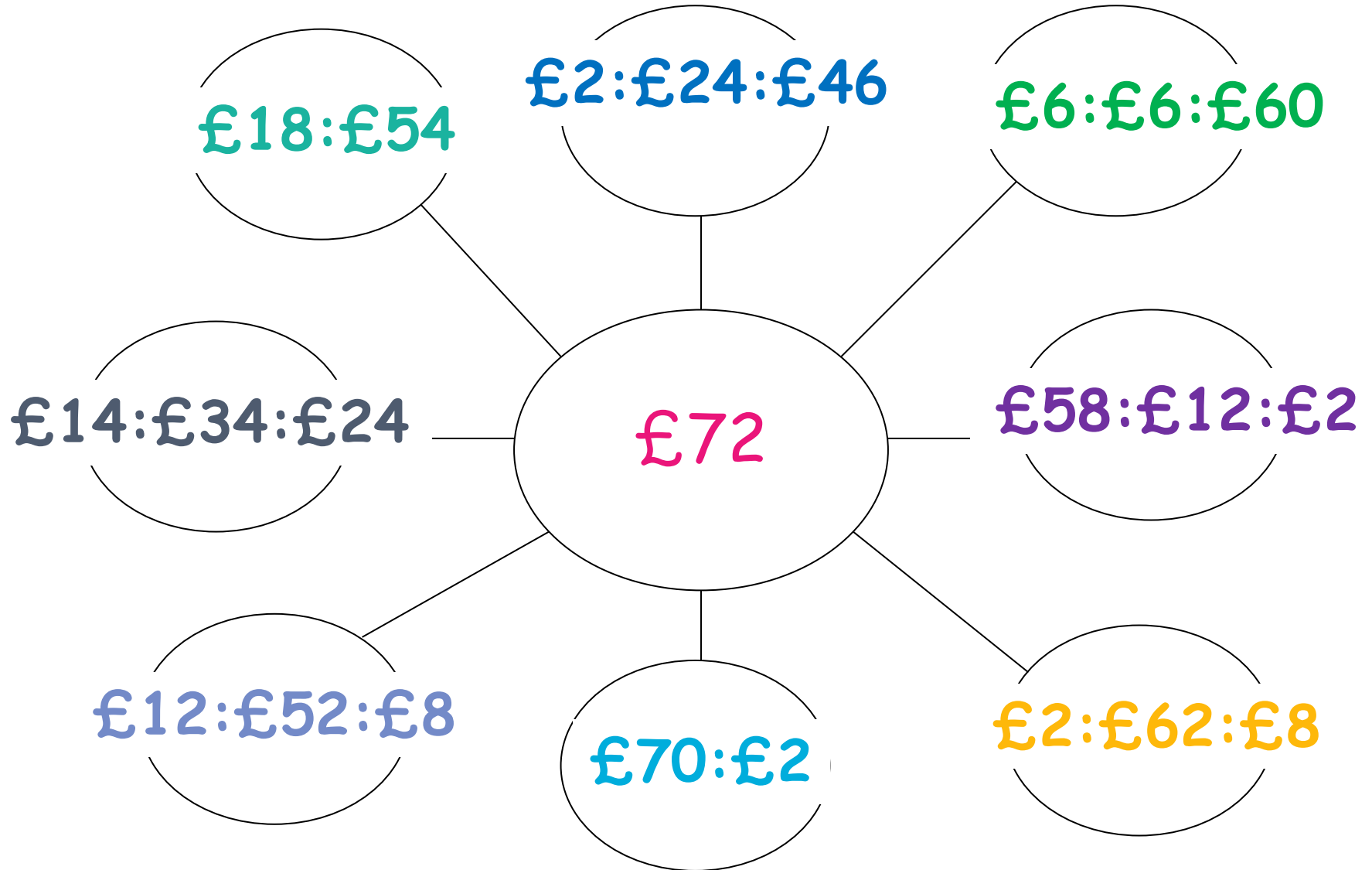
And ...

Multiply: The ratio by your answer  
 $1 \times 6 : 3 \times 6$   
 $6 : 18$

Divide the quantity in the given ratio



# Check your answers



## Example4:

A recipe to make 4 cup cakes requires the following ingredients:

2 eggs  
250g of flour  
100g of sugar

Answer:

5 eggs  
625g of flour  
250g of sugar

How much of each ingredient would I need to make 10 cup cakes?

Divide 10 (the new total) by 4 (the original total).

$$10 \div 4 = 2.5$$

**Multiply all the ingredient amounts by 2.5.**

# Recipe

## Pancake Mix

For 4 pancakes you will need:

6 dessertspoons of flour

$\frac{1}{4}$  litre milk

1 pinch salt

1 egg



You want to make 10 pancakes.

1. How much flour will you need?
2. How much milk will you need?



# Enlarging a photo to make a poster

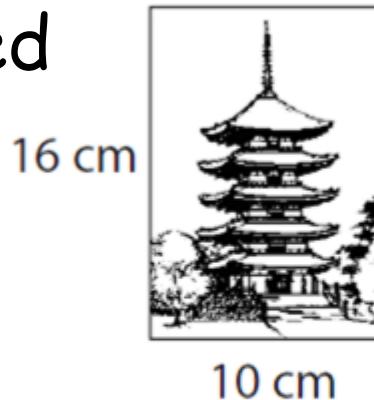
1. The photo is enlarged to make a poster.

The photo is 10cm wide and 16cm high.

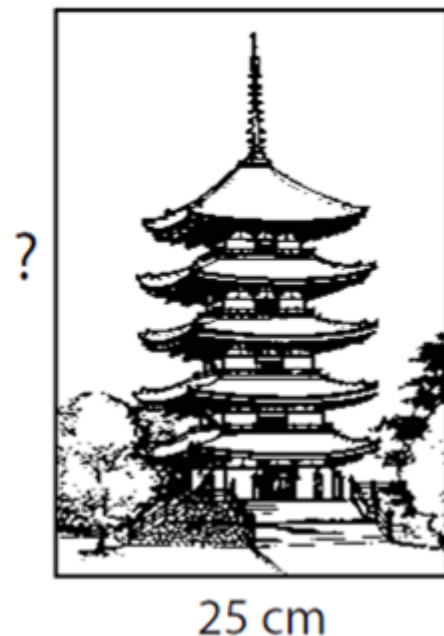
The poster is 25cm wide.

- How high is the poster?

Photograph



Poster



2. In the poster, the building is 30cm tall.

- How tall is it in the photo?

# Beware! It can work a little differently

One person can dig a  $1\text{m}^3$  hole in 4 hours.

How long will it take 2 people? 2 hours

How long will it take 4 people? 1 hour

How long will it take 8 people?  $\frac{1}{2}$  hour

# Inverse Proportion

It takes 1 person 24 days to dig a hole...

How long would it take:

- 2 people?
- 3 people?
- 4 people?
- 48 people?

