How to Calculate the Scale of an Aerial Photograph

Measure the distance between two distinct features

Hints

- The two features must **appear on both** the map and aerial photograph.
- Use **human features** eg. road junctions, buildings.
- A **greater distance** between the two features will produce a more accurate answer.
- Try and measure a distance on the **photo** that is a **whole number**

Example: Map Scale is 1:50 000

1 **Measure** the direct distance between the same two points on the **aerial photo** eg. 10cm

2 **Measure** the direct distance between two points on the **map** eg. 6.5cm

3 Ratio of Scales = Ratio of Distances

$$\frac{\text{Scale of Photo}}{\text{Scale of Map}} = \frac{\text{Map Distance}}{\text{Photo Distance}}$$

$$\frac{\text{Scale of Photo}}{50\,000} = \frac{6.5\text{cm}}{10\text{ cm}}$$

$$\text{Scale of Photo} = \frac{6.5 \times 50\,000}{10}$$

$$= \frac{325\,000}{10}$$

$$= 32\,500$$

Scale of Photo = 1: 32 500

The aerial photo has a LARGER SCALE than the map.

LARGE SCALE photos or maps show a SMALLER AREA but in MORE DETAIL
eg. 1:10 000

SMALL SCALE photos or maps show a LARGER AREA but in LESS DETAIL
eg. 1:500 000