

Supt. 28 Day 7 - Enlarging and Reducing

A map cannot be the same size as the area it represents. So the measures are **SCALED DOWN** to make the map a size that can be easily used. A **scale drawing** of a building, for example, has the **same shape and dimensions** as the **real building** that it represents, but in a **different size**.

A scale is represented in one of two different ways:

With Units - 1 cm:2 km

Without Units - 1:1000

The values in a scale are generally written as:

**Drawing Length:Actual Length**

Examples:

Write the scale following scales as a ratio without units.

1 cm : 1 m

1 cm : 100 cm

1 : 100

5 mm : 1 m

5 mm : 100 cm

5 mm : 1000 mm

5 : 1000

1 : 200

(divide by 5)

A particular map has a scale of 1:5000. What is the actual distance if the map distance is 8 cm?

8 cm : 40000 cm

1 cm : 5000 cm

$8 \times 5000$

$\times 8$

A map shows a scale of 1 cm:5 km. What would the distance on the map be (in cm) if the actual distance is 14 km?

1 cm : 5 km

2.8 cm : 14 km

$\frac{14}{5} = 2.8$

$$10 \text{ m} : 1 \text{ km}$$

$$10 \text{ m} : 1000 \text{ m}$$

$$10 : 1000$$

$$1 : 100$$

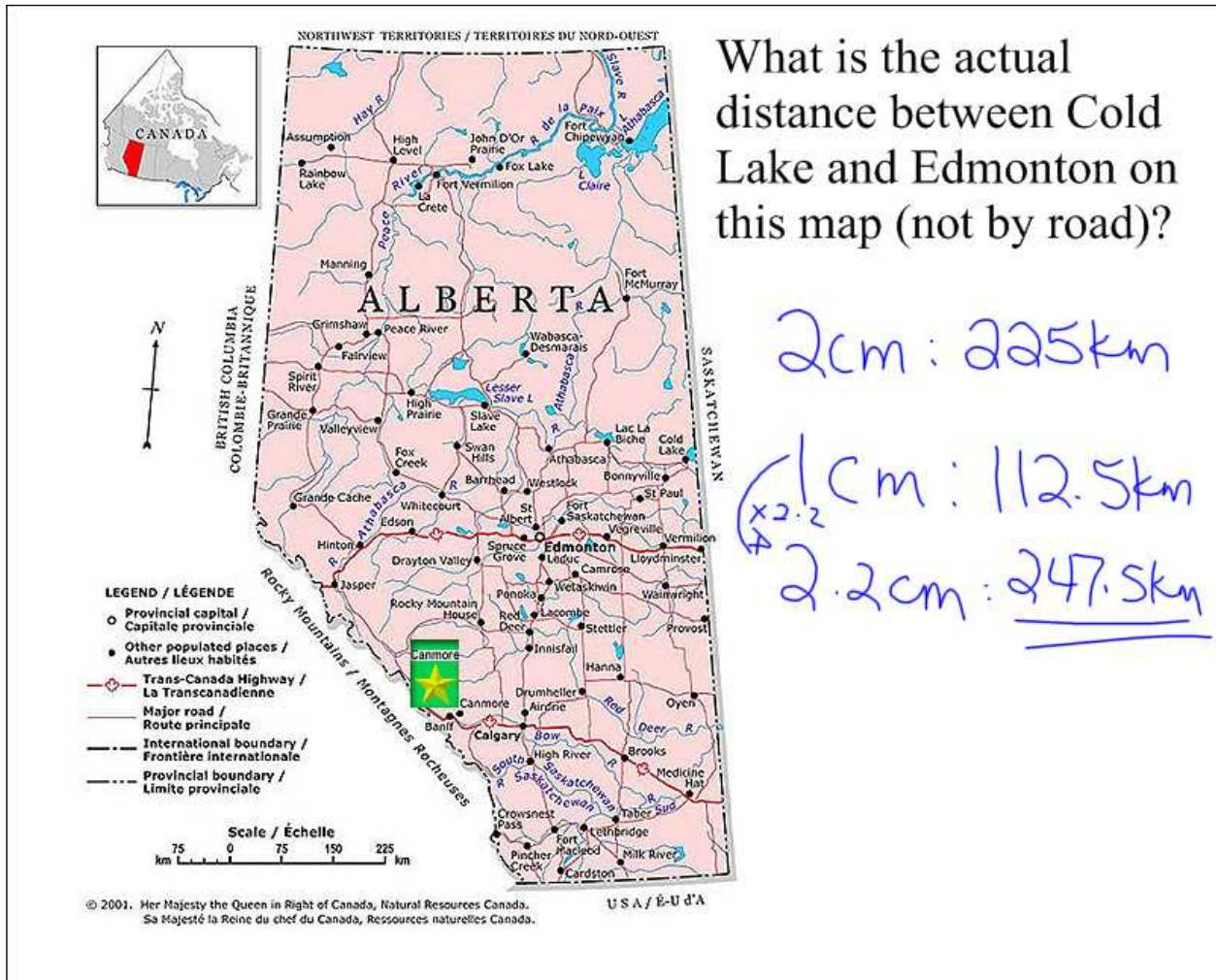
$$1 \text{ cm} : 3 \text{ km}$$

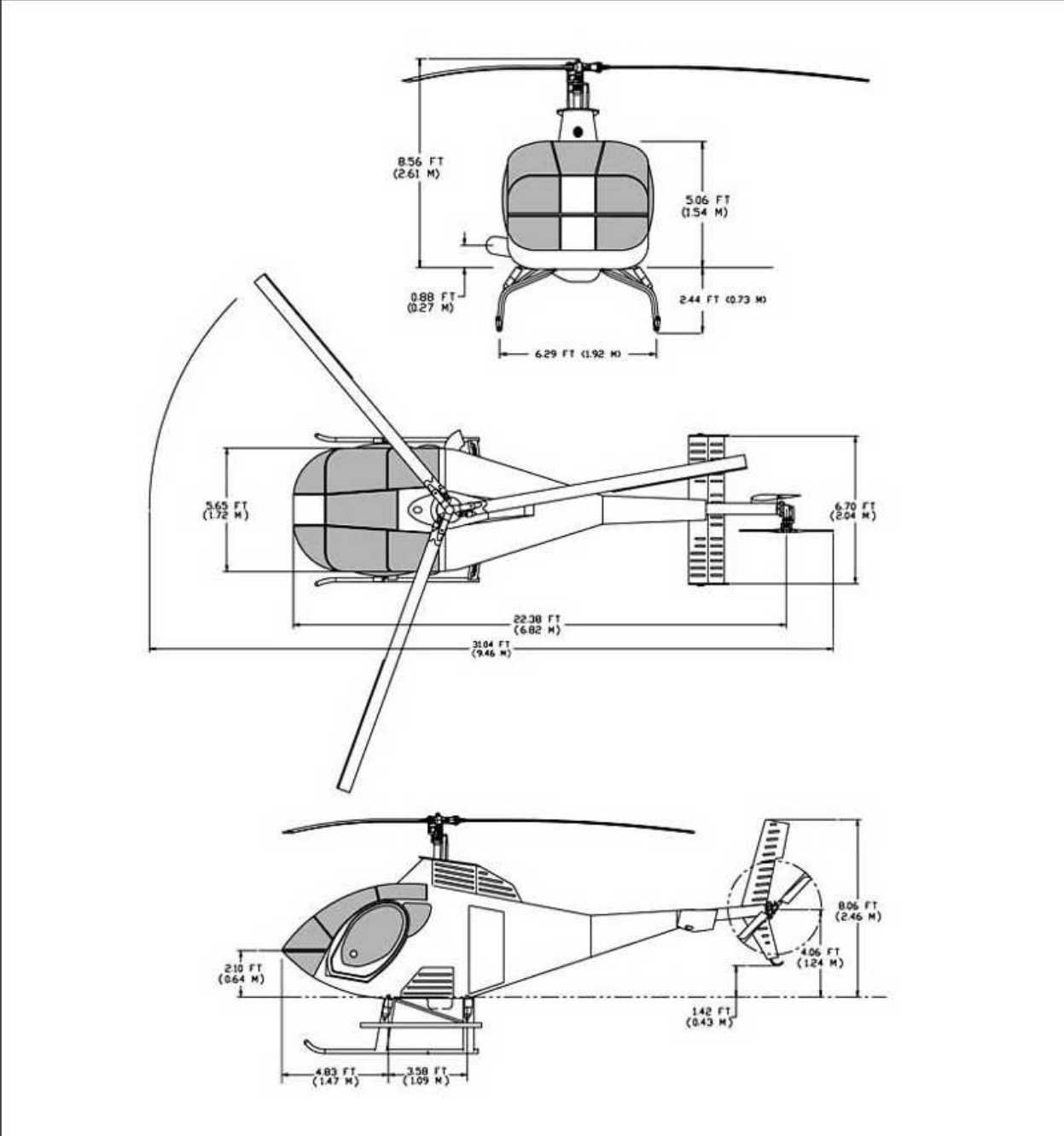
x 15

15 cm on drawing:

x 15

45 km






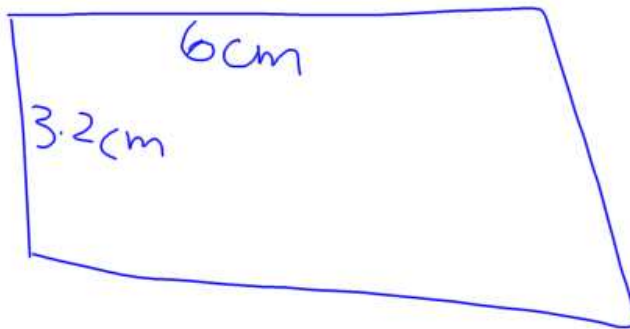
1) For a scale of 2 cm = 1 m answer the following:

a. a fence is 20 cm long in a drawing = 10 m in real life

b. a room is 7 cm wide in a drawing = 3.5 m in real life.

c. a pool is 14 cm wide in a drawing = \_\_\_\_\_ m in real life.

2) The dimensions of a stadium are 150 m by 80 m. If 1 cm:25 m on a scale map of the stadium, what would be its dimensions on the map? 



$$\frac{150}{25} = 6 \text{ cm}$$

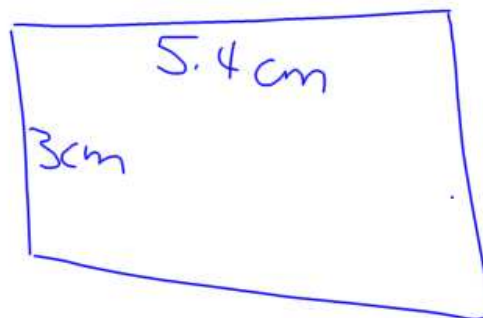
$$\frac{80}{25} = 3.2 \text{ cm}$$

3) A tennis table measures 2.7 m by 1.5 m. Use a scale of 1:50 to create a scale drawing of the tennis table.

cm cm

270cm

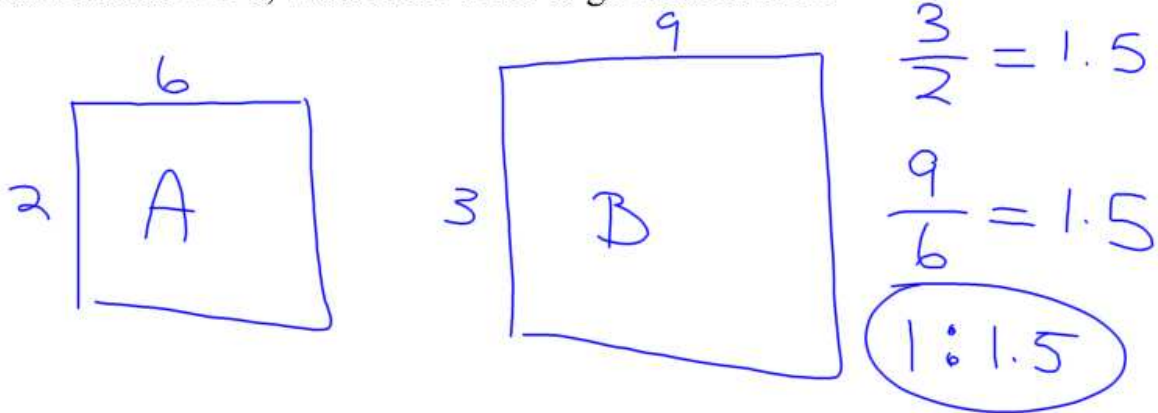
150cm



$$\frac{270}{50} = 5.4 \text{ cm}$$

$$\frac{150}{50} = 3 \text{ cm}$$

4) If rectangle A has dimensions 2 x 6 and rectangle B has dimensions 3 x 9, what is the scale to go from A to B?



5) A person 5 feet tall casts a 9 foot shadow. What is the height of an object that casts a 45 foot shadow?

$$\begin{array}{l} \times 5 \left( \begin{array}{l} 5 \text{ ft} : 9 \text{ ft} \\ \underline{25 \text{ ft}} : 45 \text{ ft} \end{array} \right) \times 5 \end{array}$$