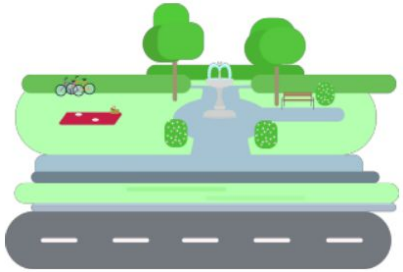
Creating Scale Drawings

Review

Answer the following question:

1) An engineer used a scale factor of 1 centimetre = 15 metres to design a city park. The park will be 180m by 75m. What should the dimensions of the park be on the map?



Review

Answer the following question:

2) A building on a map has been drawn to scale. The height of the building on the map is 4.3cm tall. The scale factor is 1cm to 5m. What is the height of the building in real-life?

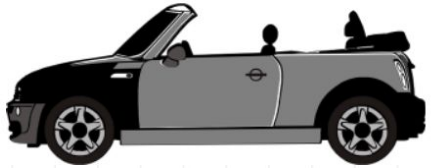
Review

Answer the following question:

3) An artist builds a model of a car to scale. The car is 15.25cm long. The scale factor is 1cm to 20cm.

a) What is the length of the car in centimetres?

b) What is the length of the car in metres?



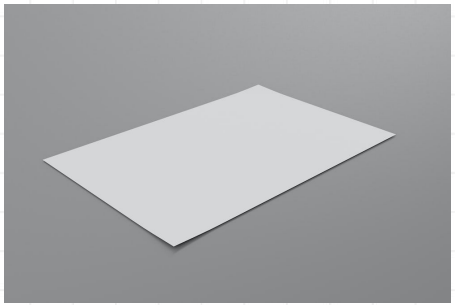
Creating a Scale Drawing

Example:

A desktop is a rectangle with dimensions 1.06 m by 51 cm.
To make a scale drawing, we need to fit the rectangle on a piece of paper.

The paper measures 28 cm by 21.5 cm.
We need a margin around the drawing, so we will use no more than 24 cm by 18 cm.

To choose a scale, find the ratios of the corresponding dimensions.



Creating a Scale Drawing

Length of paper : length of desk

= 24cm : 1.06m

= 24cm : 106cm

= 24 : 106

= 24/24 : 106/24

= 1 : 4.416

The desk is more than 4 times as long as the paper.

Width of paper : width of desk

= 18 cm : 51 cm

= 18 : 51

= 18/18 : 51/18

= 1 : 2.83

The desk is almost 3 times as wide as the paper.

Creating a Scale Drawing

With the information we found from our previous calculations, we can chose a 1:5 ratio (since we need it to be larger than the 1:4.416 ratio).

This means that 1 cm on our drawing, represents 5 cm in real life. Our desktop has dimensions of 106 cm by 51 cm.

Our scale drawing will have the following dimensions:
106 cm/5 by 51cm/5 → This gives us 21.2 cm on paper for the length, and 10.02 cm for the width.

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