

If the distance between Charlotte and Raleigh on the map is 3.5 cm, what is the actual distance between Charlotte and Raleigh?

$$\text{Scale} = \frac{\text{Act}}{\text{Mod}}$$

$$\frac{1}{m} : \frac{75}{A} = \frac{3.5}{m} : \frac{x}{A}$$

$$m : A$$

$$\frac{75}{1} = \frac{x}{3.5} \rightarrow 262.5 = x$$

The actual dist. is 262.5 km.

Yesterday...

$$\text{Scale} = \frac{\text{Actual Size}}{\text{Model Size}}$$

Example 1. A toy car is 3 cm long, while the actual car that it is modelled after is 4.5 metres long. Represent the scale using both a ratio and a fraction.

$$4.5 \text{ m} \rightarrow \text{cm}$$

$$4.5 \text{ m} \times \frac{100 \text{ cm}}{1 \text{ m}}$$

$$= 450 \text{ cm}$$

$$\text{Scale} = \frac{450 \text{ cm}}{3 \text{ cm}}$$

$$\text{Scale} = 150$$

$$1:150 \rightarrow \text{Ratio}$$

$$\frac{150}{1} \rightarrow \text{Fraction}$$

Example 2. If the distance from your house to school is 15 km. If you measure this distance on a map and find that it is 2 inches:

a) What is the scale of the map?

$$\text{Scale} = \frac{\text{Actual}}{\text{Model}} \quad \text{M:A} \quad \underline{\underline{\text{OR}}} \quad 1:7.5$$
$$2:15$$

Act: 15 km

Mod: 2 in

b) How far is the gym, which is 3 inches away from your house on the map?

$$2:15 = 3:x$$

$$\frac{15}{2} = \frac{x}{3}$$

$$45 = 2x$$

$$\frac{45}{2} = \frac{\cancel{2x}}{\cancel{2}}$$

$$\underline{\underline{22.5 = x}}$$

1. Jackie is building a scale model of a garden shed. She will let 1 inch represent 2 feet. If the base of the shed measures 8 feet by 12 feet, what measurements will Jackie need for the model?

$$1:2$$

$$1:2 = x:8$$

$$\frac{2}{1} = \frac{8}{x}$$

$$2x = 8$$

$$x = 4 \text{ in}$$

$$1:2 = x:12$$

$$\frac{2}{1} = \frac{12}{x}$$

$$2x = 12$$

$$x = 6 \text{ in}$$

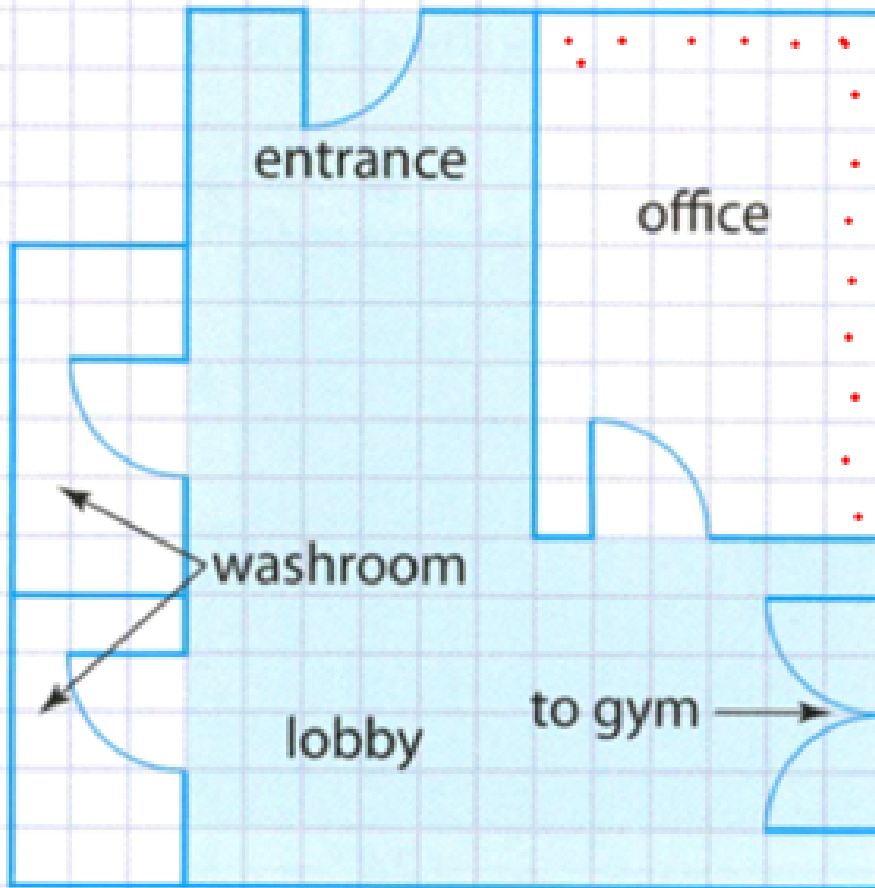
The model will be 4 in by 6 in

3. A common scale for collectible toy cars is 1:64. Use the following measurements of the scale model to determine the actual measurements of the 1959 Volkswagen Beetle. Round your answers to the nearest centimetre.

- a)** length = 6.4 cm
- b)** width = 2.4 cm
- c)** height = 2.3 cm
- d)** wheel diameter = 5.6 mm



Scale: 1 square represents 1'



1) Write the scale of the model as a fraction and as a ratio

$$1:1 \quad \frac{1}{1}$$

2) What are the dimensions of the office in real life?

3) What is the area of the office

$$54 \text{ ft}^2$$

4) If tiles that are 1 foot by 1 foot cost \$8.99, how much will it cost to redo the floor of the office?

$$54 \text{ ft}^2 \times 8.99 \\ = \$485.46$$

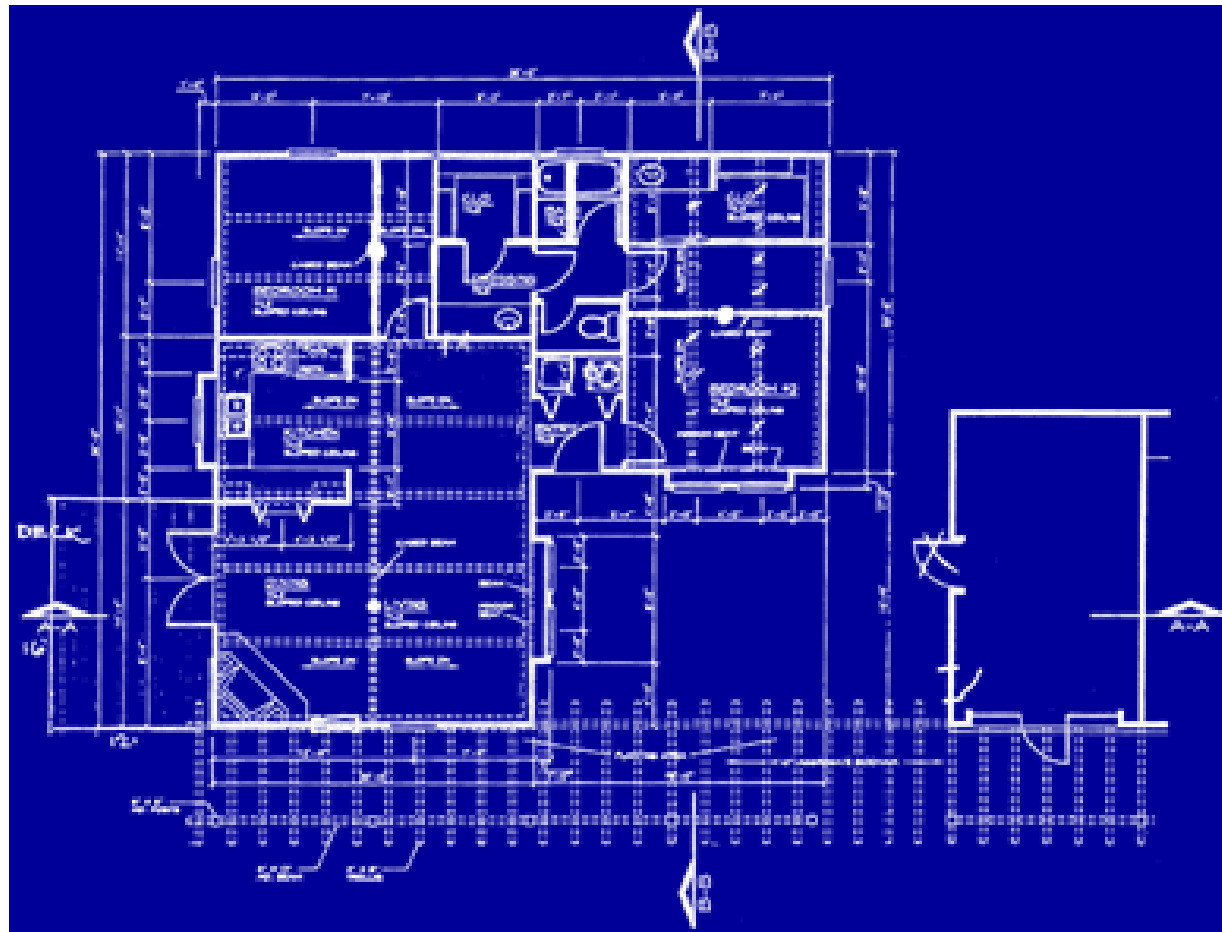
Office is \rightarrow 6sq by 9sq
6' by 9'

Missing dimensions

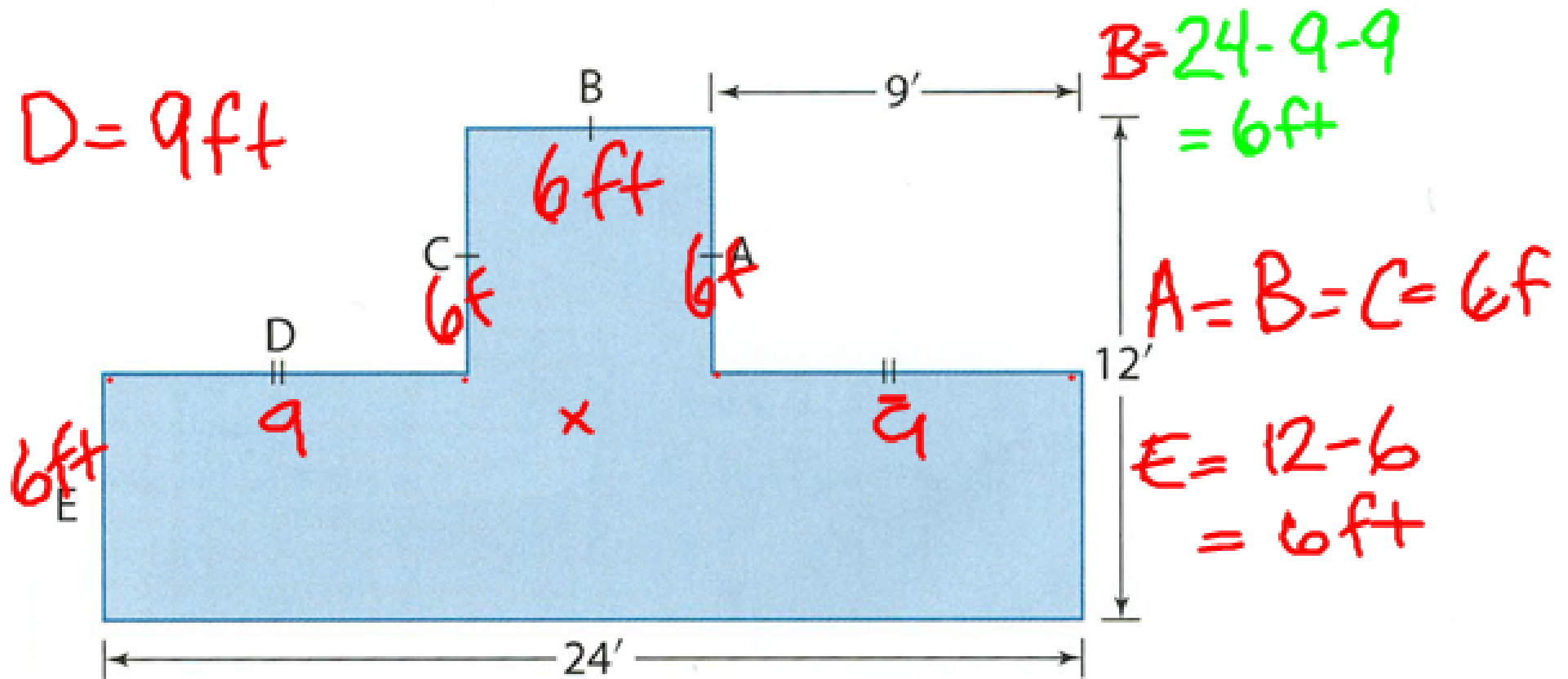
Today, we're going to talk about how we can simplify our sketches.

You'll notice that most diagrams we work with have a MINIMUM amount of numbers. This is done to make them easier to read.

The picture below would be much more difficult to read and work with.



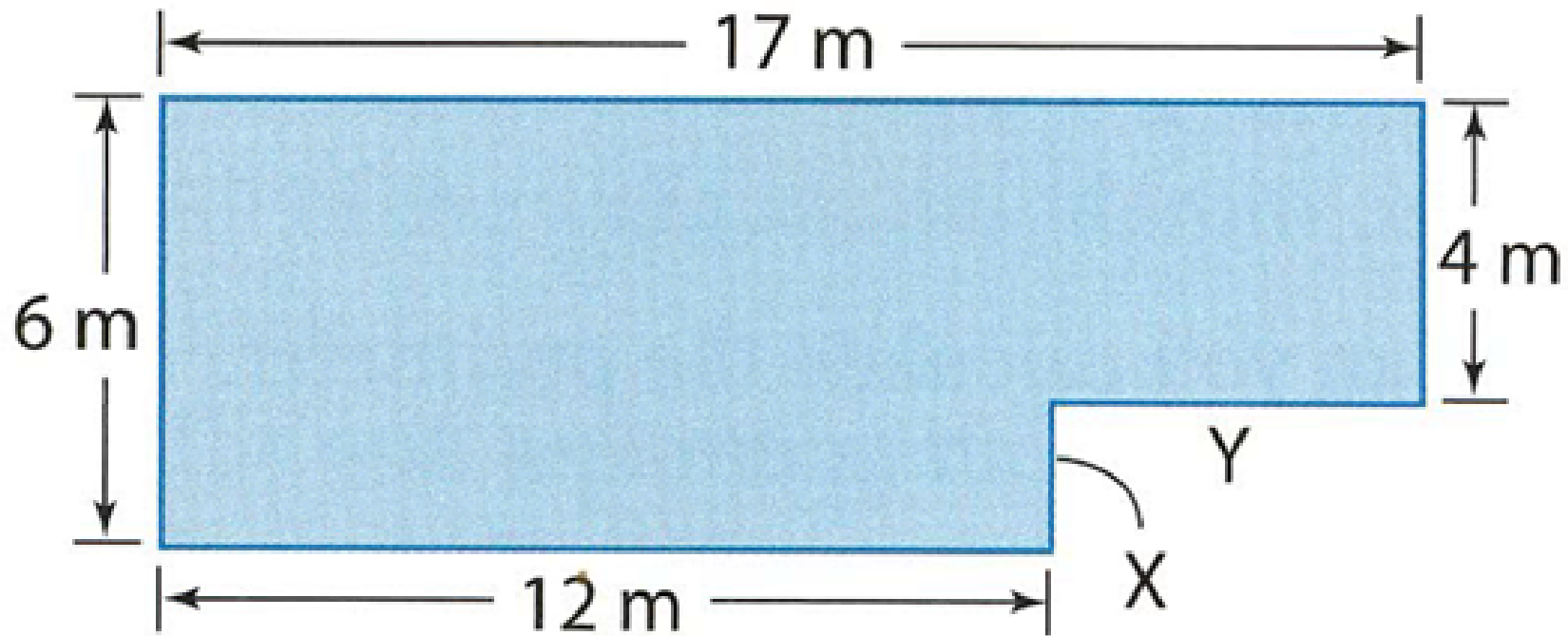
Determine the lengths of walls A to E identified on the diagram.



What is the perimeter of the shape?

$$P = 24 + 6 + 9 + 6 + 6 + 6 + 9 + 6$$
$$P = 72\text{ft}$$

a)



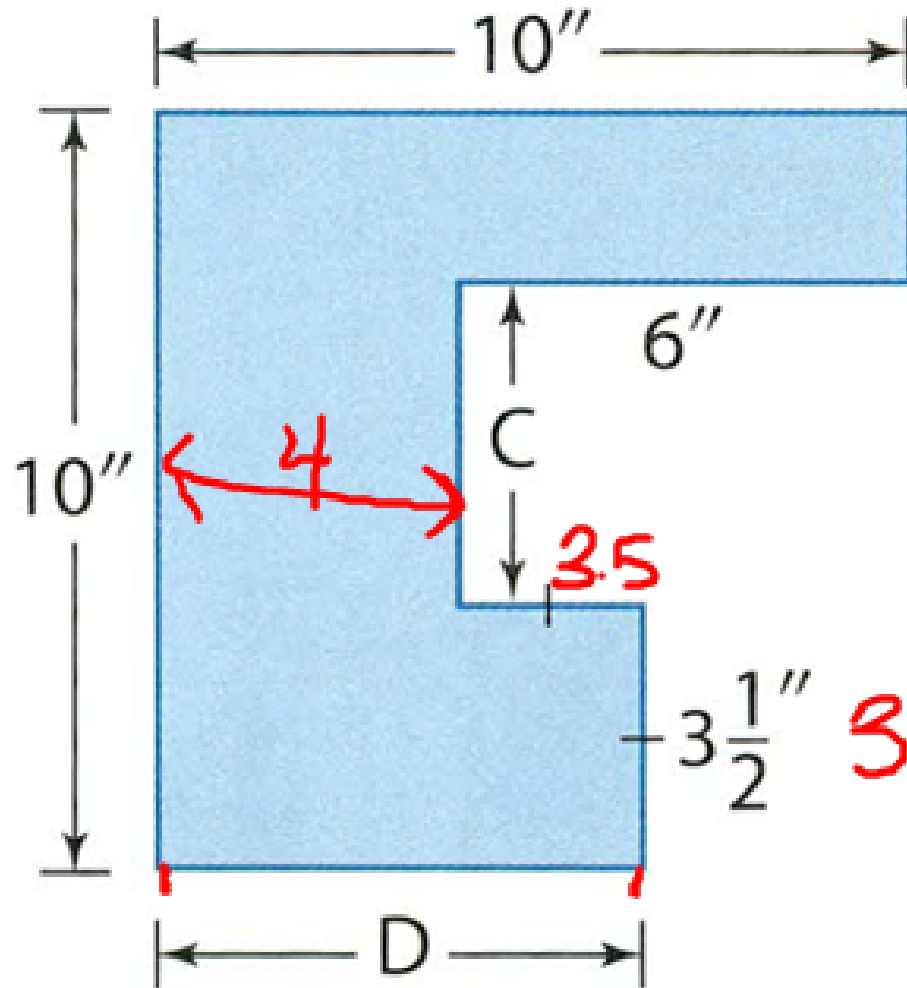
$$Y = 17 - 12 \\ = 5 \text{ m}$$

$$X = 6 - 4 \\ X = 2 \text{ m}$$

What is the perimeter of the shape?

$$12 + 2 + 5 + 4 + 17 + 6 \\ = 45 \text{ m}$$

b)



$$2\frac{1}{4} \text{'' } 2.25$$

$$C = 10 - 2.25 - 3.5 \\ = 4.25 \text{''}$$

$$D = 4 + 3.5 \\ = 7 \text{''}$$

What is the perimeter of the shape?

$$10 + 10 + 2.25 + 6 + 3.5 + 3.5 + 7 = 42.25 \text{''}$$

In feet? $3' 6 \text{''}$

7. A hospital's maintenance schedule calls for the walls of all washrooms to be painted. Below is a scale drawing of one washroom.

- All of the walls are made from concrete block that is 6 inches thick.
- The wall separating the sinks from the toilets goes from the floor to the ceiling.
- The ceiling is 9' 6" high.
- The door is 7' high.

Determine the total area to be painted.

