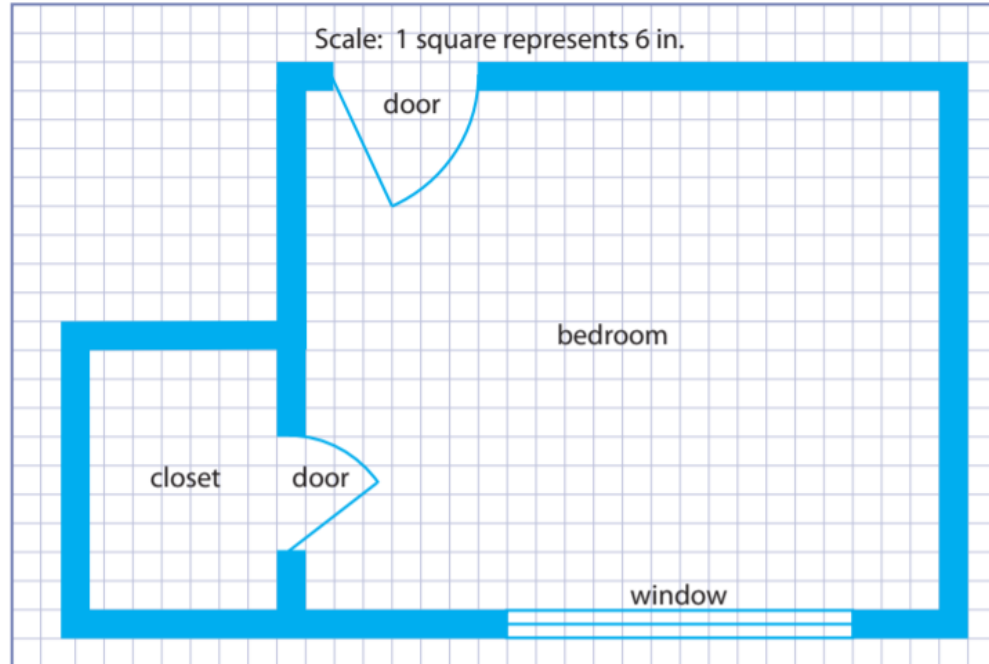


## Scale Practice

**Example** This is a **scale drawing** of Fiona's bedroom done on  $\frac{1}{4}$  inch grid paper.



- Explain the scale.
- Convert the scale of the diagram to a 1 : ■ ratio.
- What are the dimensions of Fiona's room, in feet?
- How wide are the doors? Door dimensions are quoted in inches. Show your answer in inches.
- How deep is the closet? Show your answer in feet and inches.

### Solution

a)

One side of one square on the diagram represents a length of 6 inches in the room.



I figure that two squares on the diagram represent 1 foot.

- b) The diagram is on  $\frac{1}{4}$  inch grid paper. The length of one side of each square on the diagram is  $\frac{1}{4}$  long.

$\frac{1}{4}$  represents 6".

$\frac{2}{4}$  represents 12".

$\frac{3}{4}$  represents 18".

1" represents 24".

The drawing is a 1 : 24 reduction of the room.

- c) On the diagram, the length of the room is 22 squares.

Since 2 squares represent 1 foot, the actual room is  
 $22 \div 2 = 11$  feet long.

The width of the room is 18 squares, so the room is 9 feet wide.

- d) One square represent 6 inches. The closet opening is 4 squares, so the closet door is  $4 \times 6 = 24$  inches wide.

On the diagram, the main door to the room is 5 squares wide.

The door to the room is  $5 \times 6 = 30$  inches wide.

- e) The depth of the closet is  $6\frac{1}{2}$  squares on the diagram.

$$6.5 \times 6 = 39$$

The closet is 39 inches deep.

Change 39 inches to feet and inches.

$$1' = 12''$$

$$2' = 24''$$

$$3' = 36''$$

$$39'' = 3' 3''$$

The closet is 3' 3'' deep.

$$6 \times 6 = 36$$

$$0.5 \times 6 = 3$$

$$36 + 3 = 39$$

Inches can be shown using ''

Feet can be shown using ''

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?

2. Write each scale as a 1:? Ratio.

a) 1 inch to 1 foot      b)  $\frac{1}{4}$  in. to 1 ft      c) 2'' to 3'      d) 3'' to 4'

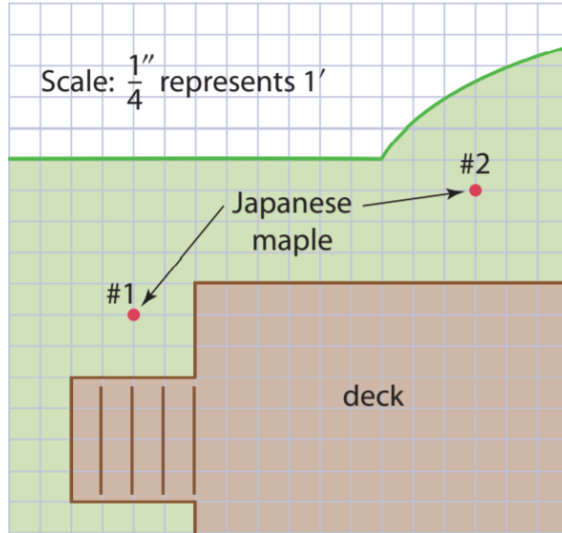
3. The most famous aircraft designed and built in Canada was the Avro Arrow. A number of  $\frac{1}{8}$  scale models were made and tested in a wind tunnel. The length of each model was 10' 8''. What was the length of the full-size Arrow?



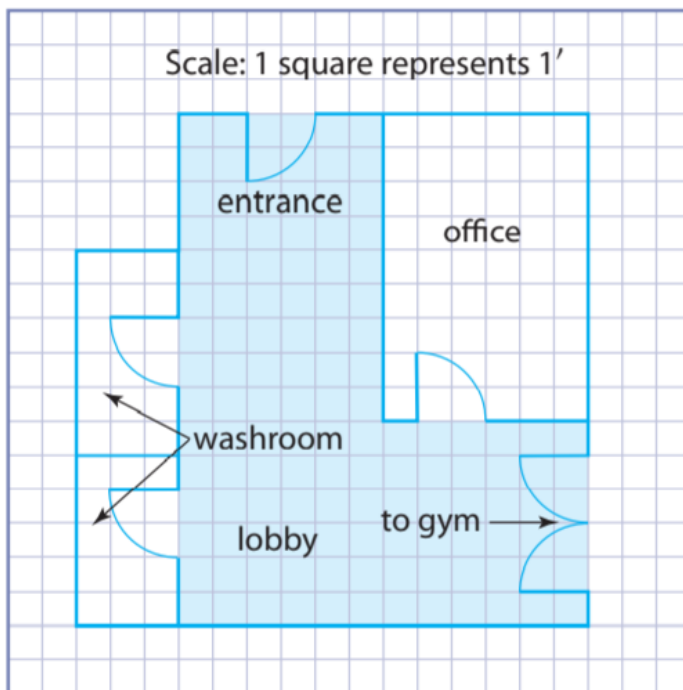
4. Part of a scale drawing for Josh's landscape design is shown below. The design is drawn on  $\frac{1}{4}$  inch grid paper.

For parts a) to c), measure from the centre of the tree.

- How far from the steps does Josh plan to plant tree #1?
- How far from the deck will he plant tree #2?
- Calculate the distance between the two trees, to the nearest foot. **Hint:** Use the Pythagorean relationship.



5. Determine the number of 6"-by-6" floor tiles needed to cover the entrance and lobby of this recreation centre. The entrance and lobby are shaded blue.



6. Create a scale diagram of your bedroom.