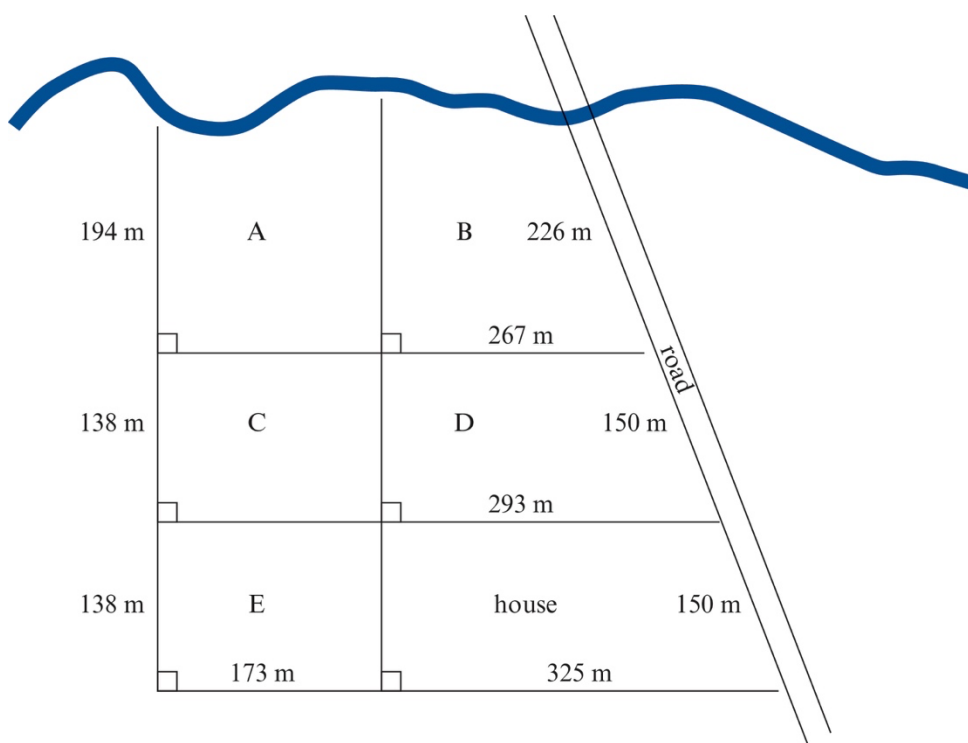Chapter 10 Measurement, scale and similarity: **Assignment**

Name: _____

Farmer Joe has a property that is bordered by a river and a road as shown in the diagram. The property has five paddocks and the house is situated on a large block with a vegetable garden and sheds.
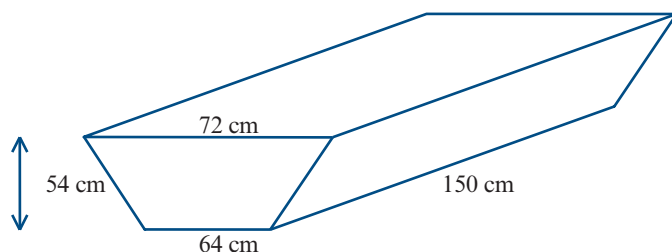

1 Farmer Joe has decided to replace the external boundary fence. No fence is required along the river. What length of fencing will he need?
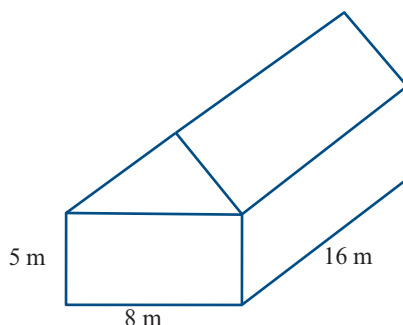
2 Farmer Joe wishes to plant some crops in paddock D. What is the area of this paddock?

3 Farmer Joe needs a new feeding trough for his cows. He wants to make it in the shape of a trapezoidal prism as shown in the diagram. (No lid is required for the trough.)

a Find the surface area of the trough. (Give your answer correct to two decimal places.)

b Find the volume of the trough.

4 When Farmer Joe cuts his hay, he bundles it into bales that are in the shape of a rectangular prism measuring 80 cm by 40 cm by 45 cm. What is the volume of a bale of hay?

5 The bales of hay are stored in a shed with dimensions as shown in the diagram above.

a What is the volume of the shed (not including roof area)?

b How many bales of hay could be stored in the barn? (No bales are stored in the roof space.)

c The barn needs repainting on the outside. What is the surface area of the outside walls?

d If one litre of paint covers 4 m^3, how much paint will be needed to paint the outside barn walls?

6 To water the vegetable garden, Farmer Joe uses a sprinkler that sweeps out a circular area with a radius of 4 m. What is the area that will be covered? (Give your answer correct to two decimal places.)

7 Farmer Joe's rain water tank is in the shape of a cylinder with a radius of 1 m and a height of 5 m. (The tank has a flat top.)

   a What is the surface area (correct to two decimal places) of the tank?

   b What is the volume (correct to two decimal places) of the tank?

   c If one litre fills 0.001 m^3, how many litres of water will the tank hold?

8 Farmer Joe has a square garden bed of side length 6 m with a circular fountain in the centre with a diameter of 1 m. He wants to edge both the circular and the outside perimeter of the garden bed in timber. Give answers to one decimal place.

   a What length of timber will he need?

   b What is the area of the garden bed available for planting?