



The Big Dog



Cheryl has a 80 kg dog named *Gandolf*. He gets out of the yard and devastates the neighborhood. Cheryl needs to build a pen for *Gandolf*.

Her budget for the pen-building project is \$800.00.

The fencing that she needs costs \$8 per metre.

Fence posts are \$20 each.

Cheryl wants to build a pen that gives Gandolf as much space as possible.

Design considerations

- The pen will also need a gate. A gate costs \$60.00 and is 1 metre wide.
- To support the fence, fence posts shouldn't be more than 3 metres apart. To look nice, the fence posts should be as evenly spaced as possible.
- There must be a fence post at any corner.
- There must be a fence post on each side of the gate.

Your task

- Design a pen using these prices that:
 - gives *Gandolf* as much space as possible.
 - meets the design specifications
- Produce a neatly presented report, which includes:
 - An introduction, explaining the problem
 - An accurate scale drawing of your pen
 - Your calculations, clearly set out
 - An explanation of how you went about solving this problem.
 - An explanation of why you think your answer is the best one.