

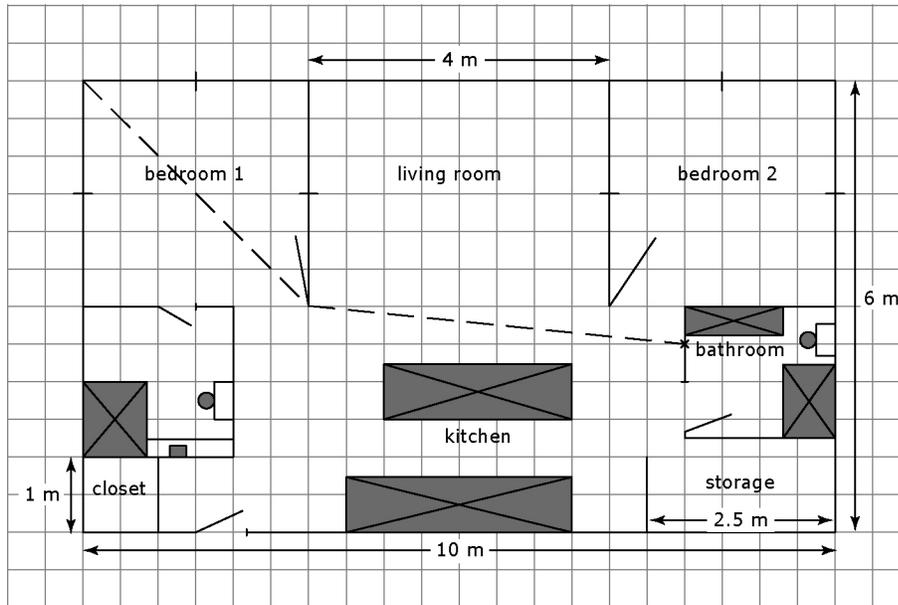
Locate Outlets for a Built-in Vacuum Unit

Materials

- BLM Floor Plan

For the diagram below

- 1 unit = 50 cm or 0.5 m
- 2 units = 100 cm or 1 m



Many modern homes and condos are equipped with a built-in vacuum unit. Outlets are installed in the walls or floors so that the owners can plug a hose into the outlets and vacuum the area nearby.

It is important to have one or more outlets located strategically so that the hose can reach every part of each room.

You be a condo builder. The blueprint above shows the plan for one of your condo units.

1. A possible outlet is located on the outside wall of the bathroom. Use the Pythagorean relationship to calculate the length of hose required (shown as a broken line) to reach the far corner of Bedroom 1, to the nearest hundredth of a metre.
2. Show the remaining paths to reach the other three corners of the condo unit. Calculate the length required for each path, to the nearest hundredth of a metre.
3. If the outlet could go anywhere inside the home, what alternative location would require a shorter hose but could still reach the entire condo? Show all calculations to support your decision.