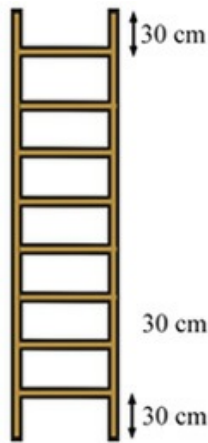


# Ladder patterns

This task is about continuing a pattern and stating the rule for the pattern.



The distance between each rung of a ladder is 30 cm, and there is an additional 30 cm at the top and bottom of the ladder, as shown in the diagram.

- a) Complete this table, giving the lengths of ladders with different numbers of rungs (Do not count the thickness of the rungs):

Number of rungs	4	5	6	7	8	9
Length of ladder (cm)	150	180				

- b) Complete the following sentence to make a rule for calculating the length of a ladder with any number of rungs.

To get the length of a ladder, multiply the number of \_\_\_\_\_ by \_\_\_\_\_ and then add \_\_\_\_\_.

- c) Because it has to lean at an angle, a ladder will only reach to a height equal to  $\frac{4}{5}$  of its length.  
Mr Carpenter has a 10-rung ladder, and wants to step onto a roof 3 metres above the ground.  
Show how to work out whether his ladder will be long enough.

Will his ladder be long enough? \_\_\_\_\_

