

YEAR 9 : PYTHAGORAS ASSESSMENT TASK

FIRE RESCUES

Fire trucks with extension ladders are used regularly to remove people from burning buildings. However, they are limited in how far they can reach, by both the length of the ladder and, for stability reasons, the distance away from the edge of the building. Assume that the ladder is at the back of the truck 2 metres off the ground.

Unless stated otherwise, for the following questions all answers are to be given correct to two decimal places. You need to draw diagrams for each question.

1. If the truck is parked 4 metres away from the base of the building, and the ladder, when fully extended, reaches a height of 16.46m up the side of the building, find the length of the ladder to the nearest metre.
2. The fire chief decided that all fire trucks must park between 2m and 7.5m from the buildings if the ladder is to be fully extended. What is the maximum height that the ladder can reach from each extreme position?
3. How far from the wall is the truck if the fully extended ladder reaches a height of 15.5m?
4. A building has its street level windows 1.5m above the ground and then the windows of successive floors are 4.2m apart vertically. Which would be the highest floor that the ladder could reach?

