Problem of the Week
Problem B and Solution
Jafar’s New Floor

Problem
Jafar is laying new hardwood flooring in his rectangular living room, which has an area of 66 m². Each box of flooring has 8 identical wooden planks, and each plank has an area of 0.2 m².

(a) Assuming that there is no waste, how many planks will he need to cover the floor of his living room?

(b) If Jafar wants to buy an extra 10% for waste, how many boxes of flooring does he need to buy?

(c) If each box costs $74.50 and sales tax is 15%, what will be the total cost of the flooring in part (b)?

Solution

(a) The area of the living room floor is 66 m² and each plank has an area of 0.2 m². So the total number of planks needed is $66 \div 0.2 = 330$.

(b) The extra amount is 10% of 330, which is $0.10 \times 330 = 33$ planks.

So in total Jafar wants to buy $330 + 33 = 363$ planks. Since there are 8 planks in each box, the number of boxes required is $363 \div 8 = 45.375$. Therefore, he should buy 46 boxes.

(c) Jafar wants to buy 46 boxes, and each box costs $74.50. The total cost before tax is $46 \times $74.50 = $3427$.

The amount of tax is 15% of $3427, which is $0.15 \times $3427 = $514.05$. Therefore, the total cost of the flooring is $3427 + $514.05 = $3941.05.$