



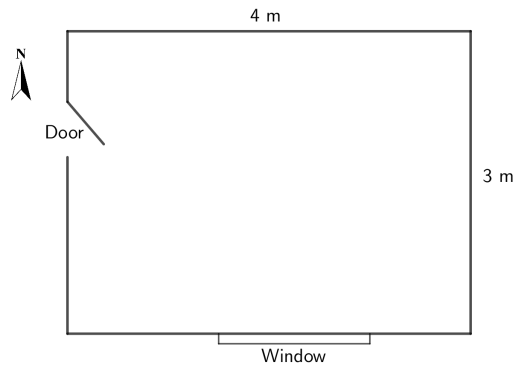
Problem of the Week

Problem B and Solution

Redecoration Station

Problem

Nimrat wants to redecorate her bedroom. The floor plan for her bedroom is shown below.



The walls in Nimrat's bedroom are 2.5 m high.

- Nimrat wants nice, plush, wall-to-wall carpet in her bedroom. How many square metres of carpet will she need to buy? If the carpet she buys costs \$20 per square metre, how much will her carpet cost in total?
- Wallpaper costs \$8 per square metre. How much wallpaper will she need to cover the north and east walls? How much will it cost for the wallpaper for those two walls?
- She decides to paint the south and west walls, and the cost for paint to do so is \$75. If her total budget is \$500 for carpet, wallpaper, and paint, how much over or under her budget is she?

Solution

- Since the total floor area of Nimrat's bedroom is $4 \times 3 = 12 \text{ m}^2$, and the carpet costs \$20 per square metre, the cost of her wall-to-wall carpet will be $\$20 \times 12 = \240 .
- Since the north wall is 4 m long and 2.5 m high, its area is $4 \times 2.5 = 10 \text{ m}^2$. Since the east wall is 3 m long and 2.5 m high, its area is $3 \times 2.5 = 7.5 \text{ m}^2$. Thus, the total area to be wallpapered is $10 + 7.5 = 17.5 \text{ m}^2$. Therefore, the cost of the wallpaper at \$8 per square metre will be $17.5 \times \$8 = \140 .
- The total cost of wallpaper, carpet, and paint will be $\$240 + \$140 + \$75 = \455 . Since her total budget is \$500, she will be $\$500 - \$455 = \$45$ under her budget.