

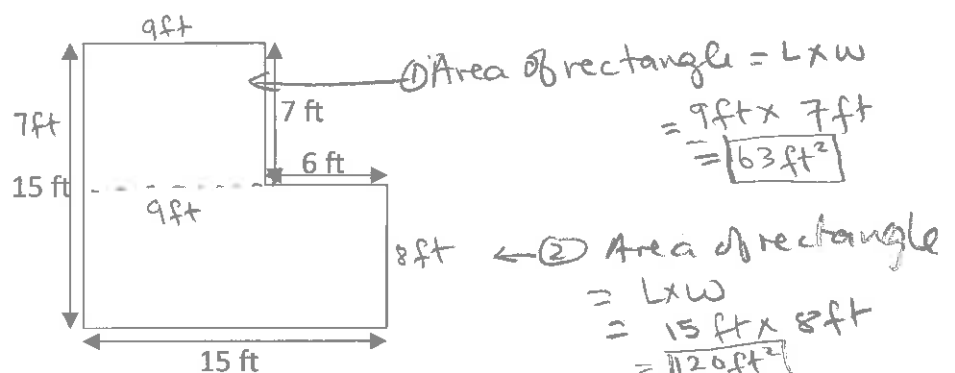
Lesson 3: Costs Associated with Design and Measurement

Now that you can convert units (Lesson 1) and calculate measurements of compound shapes (Lesson 2), it is time to look at an important side of real-life designs – the cost!

All questions in this booklet assume that you are purchasing materials in Manitoba, and that all materials and labour are subject to both PST (8%) and GST (5%).

Example 1:

You want to cover your bathroom floor with ceramic tiles. The floorplan of your bathroom is shown below (not to scale).



- a) Calculate the area that needs to be tiled. To find the area to be tiled, divide the floor area into 2 rectangles.
- ① Area of rectangle ① = $L \times W$
 $= 9' \times 7' \Rightarrow \boxed{63 \text{ ft}^2}$
- ② Area of rectangle ② = $L \times W$
 $= 15' \times 8' = \boxed{120 \text{ ft}^2}$
- TOTAL Area to be tiled = $63 \text{ ft}^2 + 120 \text{ ft}^2 = \boxed{183 \text{ ft}^2}$ TOTAL AREA TO BE TILED
- b) The tiles are square and measure 2 ft on each side. Determine the number of tiles you will need to cover your bathroom floor.
- Since each tile measure 2 ft on each side, the area of each tile = $2' \times 2' = 4 \text{ ft}^2$
- So the number of tiles = $\frac{\text{TOTAL AREA OF THE FLOOR}}{\text{Area of each tile}} = \frac{183 \text{ ft}^2}{4 \text{ ft}^2} = 45.75$
- Round up $\boxed{46 \text{ tiles}}$
- c) Tiles are sold in packs of 12 for \$73.50. Calculate the cost of the tiles required after taxes.
- Cost of the tiles = No. of packs \times \$73.50 \times 1.13 (13% taxes)
- No. of packs = $\frac{\text{TOTAL tiles}}{12} \Rightarrow \frac{46 \text{ tiles}}{12} = 3.83$
- Round up = $\boxed{4 \text{ packs}}$
- COST OF TILES = $4 \text{ packs} \times \$73.50 \times 1.13$
 $= \boxed{\$332.22}$