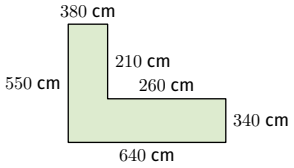
An L-Shaped Workshop Floor

Convert every dimension to metres before you calculate.



Question 1. An L-shaped workshop floor has these dimensions: left height 550 cm, top width 380 cm, inner drop 210 cm, inner horizontal 260 cm, right height 340 cm, bottom width 640 cm. Vinyl flooring costs \$34 per m^2, sold only in whole square metres.

(a) Convert all dimensions to metres, then calculate the total floor area.

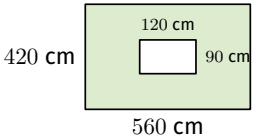
Solution $6.4 \times 3.4 = 21.76$ m^2; $3.8 \times 2.1 = 7.98$ m^2. Total $= 29.74$ m^2.

(b) Determine how many square metres of vinyl must be bought, and the total cost.

Solution Round UP $= 30$ m^2. Cost $= 30 \times \$34 = \$1020.00$.

Carpeting a Room with a Hearth

The hearth is not carpeted – convert to metres, then subtract its area.



Question 2. A room measures 560 cm by 420 cm. A fireplace hearth measuring 120 cm by 90 cm sits inside and is not carpeted. Carpet costs \$28 per m^2, and installation is a flat \$150.

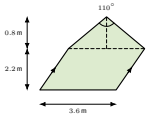
(a) Convert all dimensions to metres, then calculate the area of carpet needed.
Solution $5.6 \times 4.2 = 23.52$ m^2; hole $1.2 \times 0.9 = 1.08$ m^2. Area $= 22.44$ m^2.

(b) Calculate the cost of the carpet.
Solution $22.44 \times \$28 = \$628.32$.

(c) Find the total cost of the project, including installation.
Solution $\$628.32 + \$150 = \$778.32$.

Cladding a Carport Wall

Split the wall into the parallelogram section and the triangular gable.



Question 3. A carport's side wall is a parallelogram 3.6 m wide and 2.2 m tall, with a triangular gable 0.8 m tall above it. Cladding sheets cover 2.5 m^2 each and cost \$65, sold only as whole sheets.

(a) Calculate the total area of the wall.

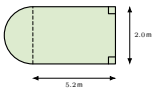
Solution Parallelogram $3.6 \times 2.2 = 7.92$ m^2. Gable $\frac{1}{2} \times 3.6 \times 0.8 = 1.44$ m^2. Total $= 9.36$ m^2.

(b) Determine how many sheets are needed, and the total cost.

Solution $9.36 \div 2.5 = 3.744$, round UP $= 4$ sheets. Cost $= 4 \times \$65 = \$260.00$.

Paving a Garden Path

Give the area and perimeter correct to 2 decimal places.



Question 4. A garden path shaped like a rectangle with a semicircular end is 5.2 m long (straight section) and 2.0 m wide. Paving costs \$58 per m^2, and edging is sold in 8 m rolls at \$65 each.

(a) Calculate the area of the path, then the cost of the paving.

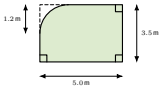
Solution $A \approx 11.97$ m^2. Cost $\approx 11.9708\ldots \times \$58 \approx \$694.31$.

(b) Calculate the perimeter, then determine how many rolls of edging are needed and the total cost.

Solution $P \approx 15.54$ m. $15.5416\ldots \div 8 \approx 1.94$, round UP $= 2$ rolls. Cost $= 2 \times \$65 = \$130.00$.

Paving a Rounded-Corner Patio

Give the area correct to 2 decimal places.



Question 5. A rectangular patio measures 5.0 m by 3.5 m, with one corner rounded off with a 1.2 m radius. Paving bags cover 0.9 m^2 each and cost \$14.50, sold only as whole bags.

(a) Calculate the area of the patio.

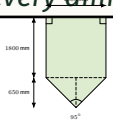
Solution $A = (5.0)(3.5) - (1.2)^2 + \frac{1}{4}\pi(1.2)^2 \approx 17.19$ m^2.

(b) Determine how many bags are needed, and the total cost.

Solution $17.1910\ldots \div 0.9 \approx 19.10$, round UP $= 20$ bags. Cost $= 20 \times \$14.50 = \$290.00$.

Cladding a Kennel Gable

Convert every dimension to metres before you calculate.



Question 6. A dog kennel's gable end is a 1800 mm square with a triangular roof section 650 mm tall above it. Cladding costs \$48 per m^2, plus a \$25 cutting fee.

(a) Convert the dimensions to metres, then calculate the total area of the gable end.
Solution 1800 mm $= 1.8$ m, 650 mm $= 0.65$ m. Square $= 3.24$ m^2. Gable $= \frac{1}{2} \times 1.8 \times 0.65 = 0.585$ m^2. Total $= 3.825$ m^2.

(b) Find the total cost, including the cutting fee.
Solution $3.825 \times \$48 = \$183.60$. Total $= \$183.60 + \$25 = \$208.60$.