

Perimeter and Area

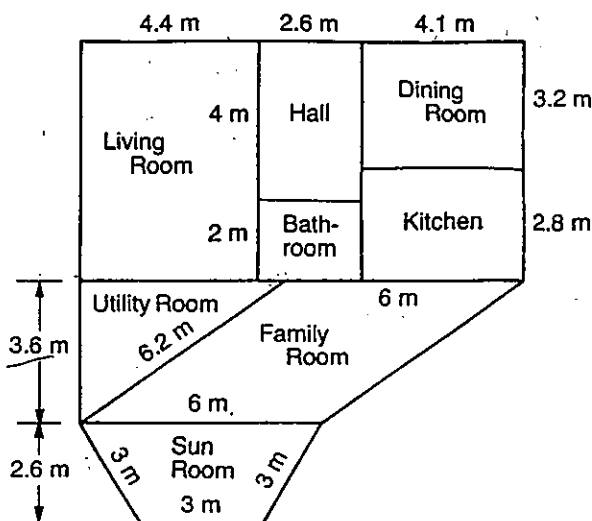
This diagram is the ground floor plan of a house. If we use formulas involving perimeter and area, many problems involving the ordering of materials can be solved. (In all this work we will ignore doorways and the fact that we would probably order a little extra.)

Find the cost to carpet the hall (wall to wall) if the carpet costs \$32.95/m².

$$\begin{aligned} A &= \ell \times w \\ &= 4 \times 2.6 \\ &= 10.4 \end{aligned}$$

$$\begin{aligned} \text{Cost} &= 10.4 \times 32.95 \\ &= 342.68 \end{aligned}$$

The cost is \$342.68 (ignoring waste).



1. Baseboard is to be installed in the living room and dining room and it costs \$0.53/m. Find the cost.

2. The ceiling of the hall is to be painted with a special stippled paint. It will require 3 coats of paint. If paint costs \$8.95/L and each litre covers 12 m², find the cost.

3. A protective casing is to be placed around the family room. This casing is priced at \$1.89/m. Find the cost.

4. The family room is to be carpeted. The carpet chosen costs \$27.00/m². Find the cost to carpet the family room.

5. The sun-room floor has to be painted with 2 coats of paint. Each litre of paint covers 20 m². If paint costs \$11.95/L, find the cost to paint the floor.

6. The ceiling in the family room is to be tiled using square tiles that measure 0.25 m on each side. How many tiles will be needed to tile this ceiling?

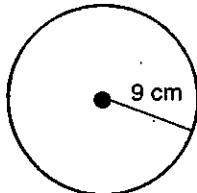
7. Screens need to be purchased for the sun room. They will cover the 3 exterior walls from top to bottom. If the sun room is 2.5 m high and screening costs \$1.05/m², find the cost to screen the sun room.

8. In the bathroom, ceramic tile is to be laid on the floor. If each tile measures 0.1 m², how many tiles would be left if 60 tiles are purchased and none are wasted?

9. The kitchen needs special waterproof flooring. It is sold in rolls and each roll covers 3 m². If each roll costs \$15.95, find the cost to complete this job.

Circumference and Area of Circles

Find the circumference and the area of the circle.



Circumference

$$\begin{aligned} C &= 2\pi r \\ &= 2 \times 3.14 \times 9 \\ &= 56.52 \end{aligned}$$

The circumference of the circle is 56.52 cm.

Area

$$\begin{aligned} A &= \pi r^2 \\ &= 3.14 \times 9 \times 9 \\ &= 254.34 \end{aligned}$$

The area of the circle is 254.34 cm².

1. Find the circumference and the area of the following circles.

- radius 30 cm
- diameter 28.5 m
- radius 2.84 mm

2. The diameter of the wheel on a bicycle is 98 cm. Find the number of revolutions the wheel makes if the bicycle travels a distance of 2 km.

3. Find the diameter of a circle that has twice the area of a square that has each side equal to 8.4 cm.

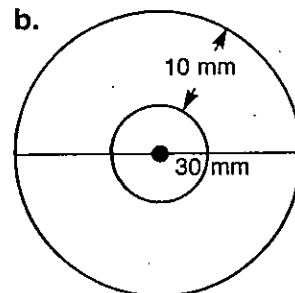
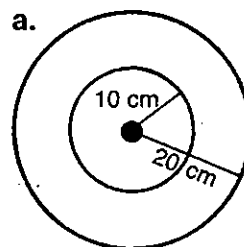
4. Find the number of revolutions a circle with a radius of 4 cm would make if it were to be rolled completely around a circle with three times the radius.

5. Find the radius of these circles.

- area 153.86 m²
- circumference 7.536 cm
- area 452.16 cm²

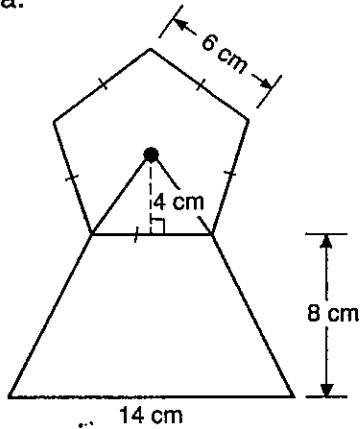
6. A painter has to paint a cylindrical storage tank. If the tank is 10 m high and the top has a diameter of 4 m, find the area to be painted if he ignores the floor.

7. Find the area of the rings shown.



Area of Regular Polygons and Trapezoids

Find the area.



The area of the pentagon is found by finding the area of each triangle and then multiplying by 5 (the number of triangles).

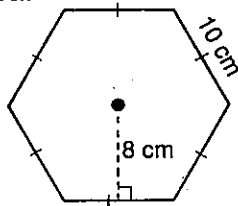
$$\begin{aligned} \text{Area} &= 5 \times \left(\frac{1}{2} \times 6 \times 4\right) \\ &= 60 \end{aligned}$$

The area of the trapezoid is found by using the formula $A = \frac{1}{2}h(a + b)$.

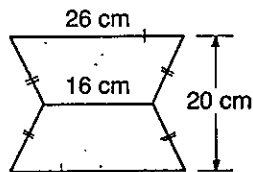
$$\begin{aligned} \text{Area} &= \frac{1}{2}(8)(14 + 6) \\ &= 80 \end{aligned}$$

The total area is $60 \text{ cm}^2 + 80 \text{ cm}^2 = 140 \text{ cm}^2$.

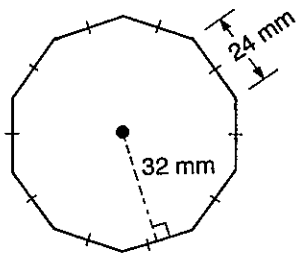
1. Find the area.



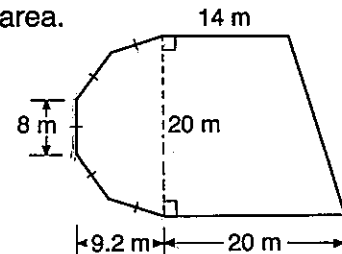
2. Find the area.



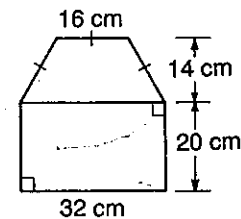
3. Find the area.



4. Find the area.



5. Find the area.



6. Find the area.

