O Level E Maths Tutorial 14: Mensuration

Syllabus :
• area of parallelogram and trapezium

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1. Find the area of the
   (a) parallelogram
   (b) trapezium

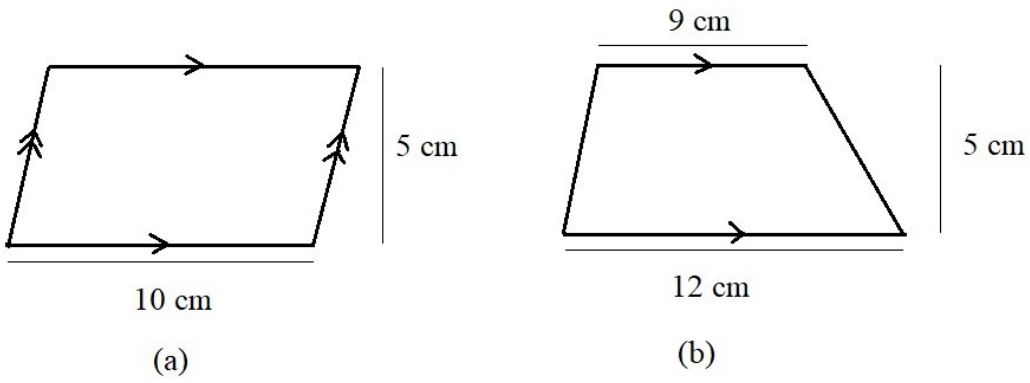

Figure 14-1

• problems involving perimeter and area of composite plane figures

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2. Find the perimeter and area of this figure.

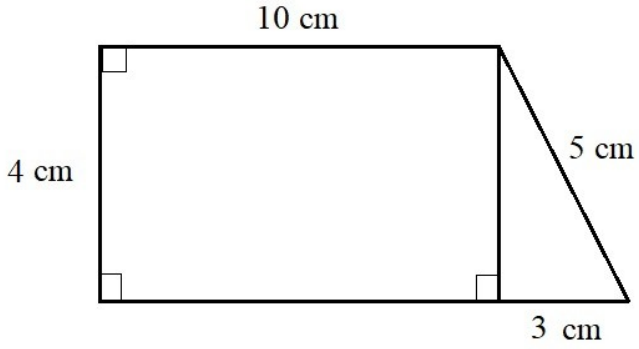

Figure 14-2

• volume and surface area of cube, cuboid, prism, cylinder, pyramid, cone and sphere

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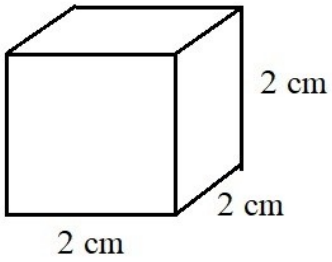
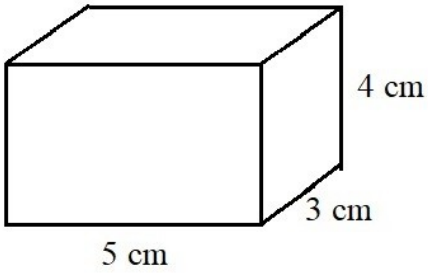
3. Find the volume and surface area of the following figures.

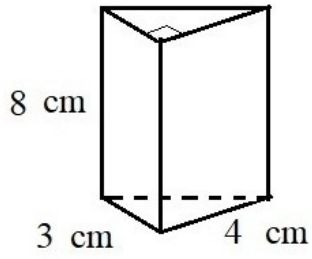
(a) Cube



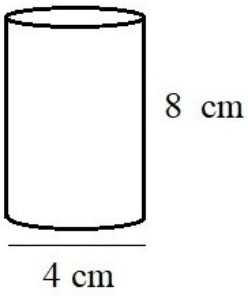
(b) Cuboid



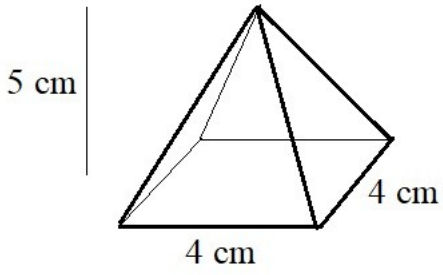
(c) prism



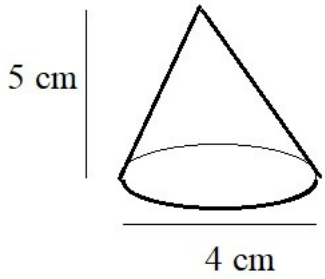
(d) cylinder



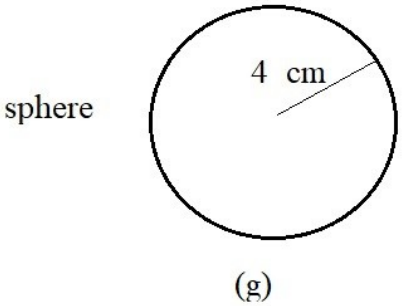
(e) pyramid



(f) cone



(g) sphere



(g)

Figure 14-3

• conversion between cm^2 and m^2 , and between cm^3 and m^3

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4. (i) A swimming pool nearby contains 90 m^3 of water. What is this volume in cm^3?

(ii) A bottle contains 100 cm^3 of water. What is this amount in m^3?

• problems involving volume and surface area of composite solids

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5. A solid wooden cube has side 10 cm. It has a small cylindrical hole at the bottom as shown. The hole has a diameter of 2 cm and a depth of 1 cm. Find the volume of the wood.

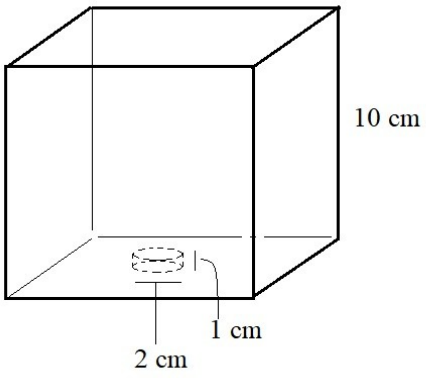

Figure 14-4

• arc length, sector area and area of a segment of a circle

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6. Find the following for the circle below:

   (i) arc length AB,
   (ii) sector area ABC and
   (iii) segment area AB.

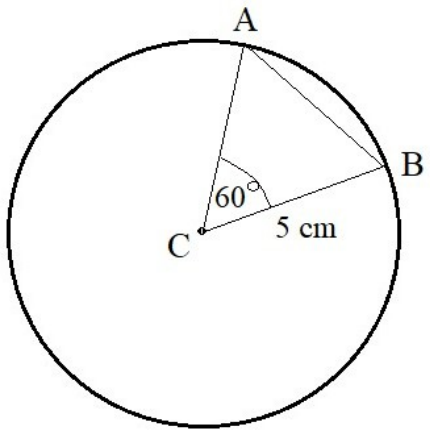

Figure 14-5

• use of radian measure of angle (including conversion between radians and degrees)

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7. 360° is equal to 2π , if we use radians instead of degrees.

   How many radians are there in 180°, 60°, 45° and 30°? Give your answers in terms of π.