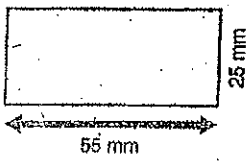
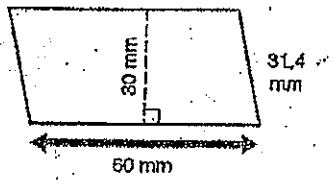
EXERCISES 10.2

Use the value of π from your calculator or $\pi \approx 3.1416$ to compute the perimeter or circumference to the nearest millimeter and the area to the nearest square millimeter of each figure in exercises 13 to 18. Then determine each area to the nearest .01 square centimeter. (*Hint:* In some cases the Pythagorean theorem will be needed to find the length of a side or hypotenuse of a right triangle, see section 6.4.)

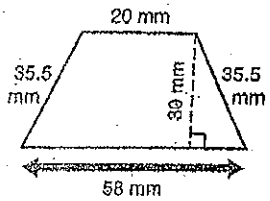
13. a. Rectangle



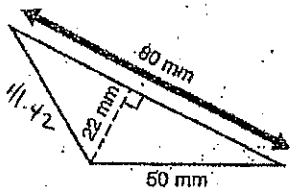
b. Parallelogram



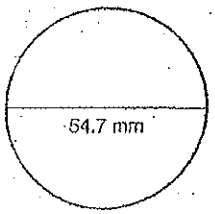
14. a. Trapezoid



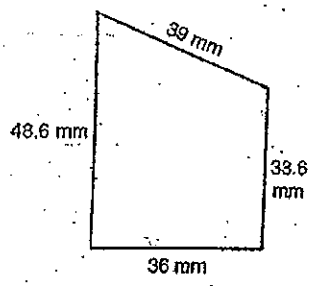
b. Scalene triangle



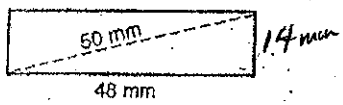
15. a. Circle



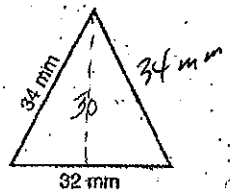
b. Trapezoid



18. a. Rectangle



b. Isosceles triangle

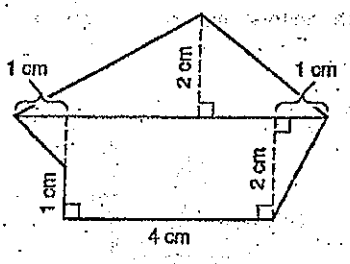


#19 area = $15\frac{1}{2}$ cm^2

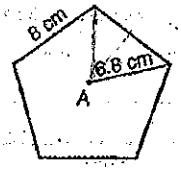
#20 area $\approx$ 110 cm^2

The area of a polygon can be found by subdividing it into smaller regions. Use this principle to find the area of the polygons in exercises 19 and 20 to the nearest .1 square centimeter.

19.



20. Regular pentagon with center A



Solutions

13a) perimeter = 160 mm
area $\approx$ 13.75 cm^2

13b) perimeter = 183 mm
area = 18 cm^2

14a) perimeter $\approx$ 149 mm
area = 1170 mm^2 = 11.70 cm^2

14b) perimeter $\approx$ 171.42 mm
area $\approx$ 880 mm^2 = 8.8 cm^2

15a) Circumference $\approx$ 172 mm
area $\approx$ 2350 mm^2 = 23.50 cm^2

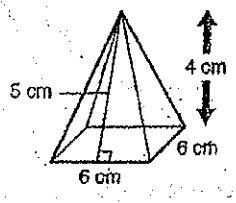
18a) perimeter = 124 mm
area = 672 mm^2 = 6.72 cm^2

18b) perimeter = 100 mm
area = 480 mm^2 = 4.8 cm^2

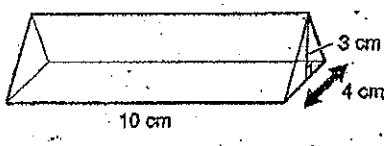
EXERCICES 10.3

Compute the volumes of the figures in 7 through 12 to the nearest cubic centimeter, and compute their surface areas to the nearest square centimeter.

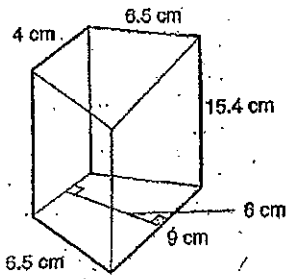
7. a. Square pyramid



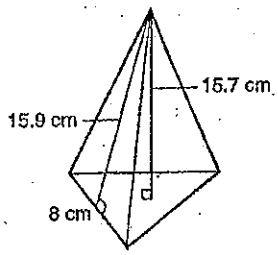
b. Triangular isosceles prism



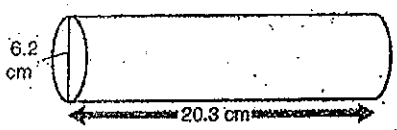
11. a. Trapezoidal prism



b. Equilateral triangular pyramid

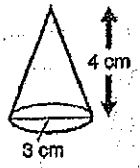


12. a. Cylinder



Compute the volumes to the nearest .1 cubic centimeter for the figures in exercises 13 and 14.

13. a. Cone



Solutions

7a) $V = 48\ cm^3$

$SA = 96\ cm^2$

7b) $V = 60\ cm^3$

$SA = 124\ cm^2$

11a) $V \approx 601\ cm^3$

$SA \approx 478\ cm^2$

11b) $V = 144\ cm^3$

$SA \approx 218\ cm^2$

#12a $V \approx 612.6\ cm^3$

$SA \approx 455.6\ cm^2$

#13a $V \approx 9.5\ cm^3$