F.2 Mathematics Worksheet 10A
Ch.10 Areas and Volumes (10.1 – 10.4)

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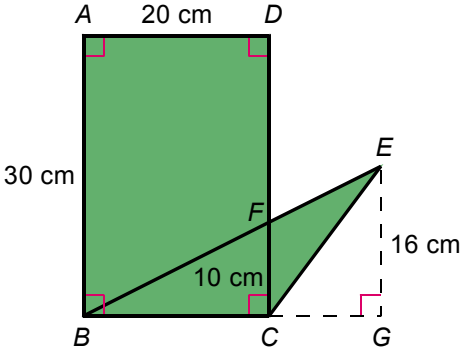
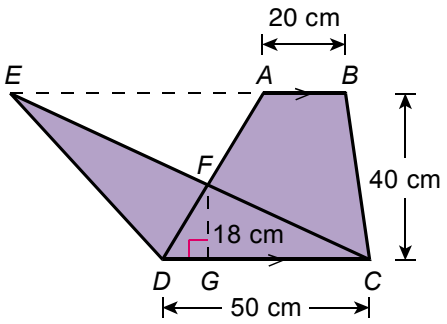
1. Find the area of the shaded region in each of the following figures.

(a)



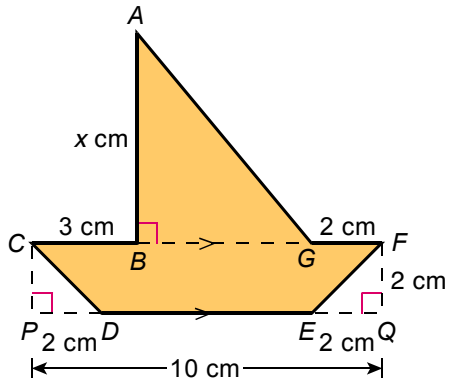
BE and *CD* meet at *F*.

(b)

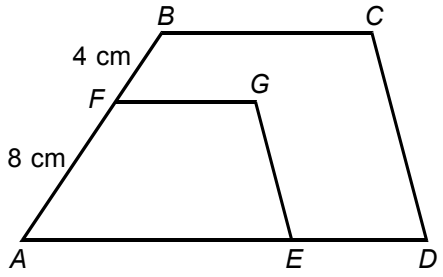


AD and *CE* meet at *F*.

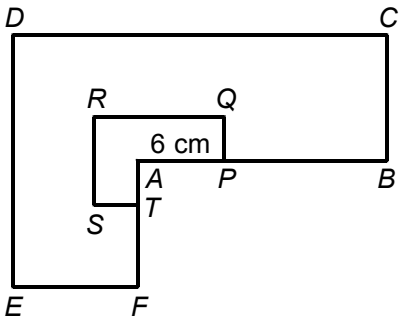
2. In the figure, if the area of the shaded region is $31\ \text{cm}^2$, find the value of x.



3. In the figure, *ABCD* and *AFGE* are two similar figures. If the area of *AFGE* is $56\ \text{cm}^2$, find the area of *ABCD*.



4. In the figure, *ABCDEF* and *APQRST* are two similar figures, their respective areas are $125\ \text{cm}^2$ and $20\ \text{cm}^2$. Find the length of *PB*.

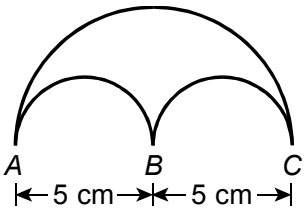


5. Two pieces of iron wire of different lengths are bent into two similar polygons in the star shape, where the ratio of the lengths of the two pieces of wire is 6 : 11. If the area of the smaller star is $72\ \text{cm}^2$, find the area of the larger star.

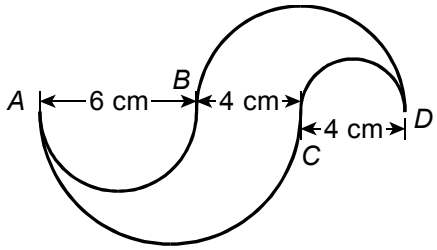
[In this exercise, give your answers correct to 1 decimal place if necessary.]

6. The following figures are formed by semi-circles, find the perimeter of each figure. (Express your answers in terms of π.)

(a)



(b)



7. Given that the diameters of two circles are 14 cm and 16 cm respectively, what is the difference in their circumferences? (Express your answer in terms of π.)

8. The length of the minute-hand of a clock is 12 cm. Find the distance moved by the tip of the minute-hand in 45 minutes. (Express your answer in terms of π.)

9. A rope of 198 cm long can wrap around a cylindrical can 6 times. What is the diameter of the base of the can?

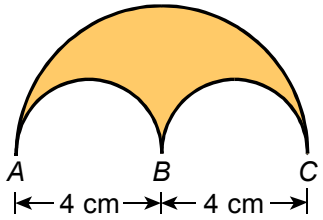
10. The ratio of the circumferences of two circles is 7 : 5. What is the ratio of their diameters?

***11.** The diameter of a car wheel is 48 cm. If the wheel makes 550 revolutions per minute, find the speed of the car. (Express your answer in km/h.)

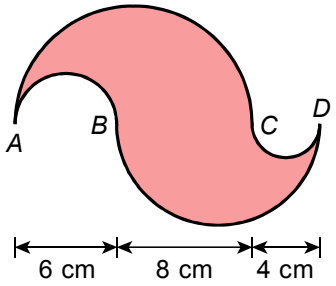
[In this exercise, give your answers correct to 1 decimal place if necessary.]

12. The following figures are formed by semi-circles, find the area of each figure. (Express your answers in terms of π.)

(a)

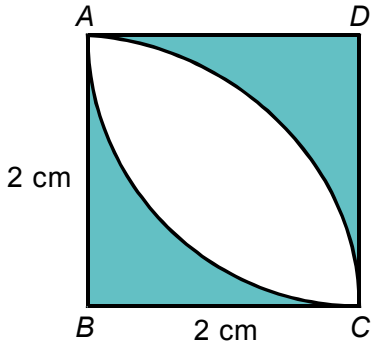


(b)



13. The area of a discus is 350 cm^2, find its radius.

14. The following figure is formed by quadrants and a square. Find the area of the shaded region.



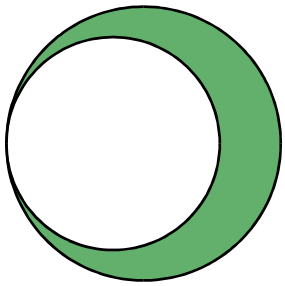
***15.** If the radius of a circle decreases by 5%, what is the percentage decrease in the area of the circle?

16. The base areas of two cylindrical cakes are in the ratio of 9 : 16. Find the ratio of their base diameters.

17. In the figure, the ratio of the radii of two circles is 7 : 9.

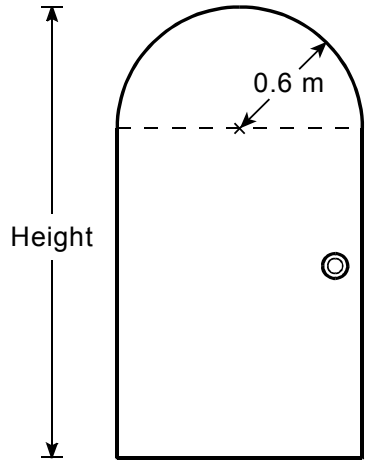
(a) Find the ratio of the area of the smaller circle to that of the larger circle.

(b) If the area of the shaded region is $48\ cm^2$, find the respective areas of the smaller circle and the larger circle.



18. It is given that the length of a necklace is 50 cm. What is the area of the circle formed by the necklace?

19. In the figure, the door is formed by a semi-circle and a rectangle. If its area is $(0.18\pi + 3)$ m^2, find its height.



20. The figure is formed by two squares and a circle.

(a) Find the radius of the circle.

(b) Find the length of the side of the smaller square. (Give your answer correct to 3 significant figures.)

(c) Find the area of the shaded region. (Give your answer correct to 3 significant figures.)