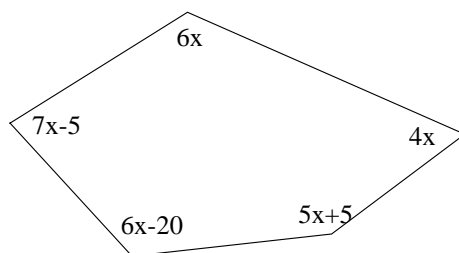


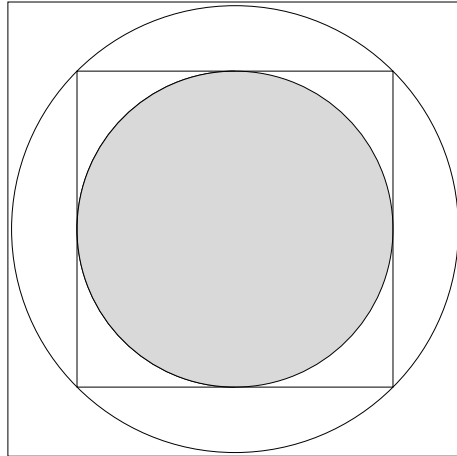
## BC EXAM

1. A rectangle has area  $16 \text{ m}^2$ . Express the perimeter in terms of the length  $x$  of one of its sides.
2. The radius of the Earth is about 3960 miles. What length of rope would be needed to wrap the rope around the earth at the equator? Give your answer in terms of  $\pi$ .
3. Find  $x$ .

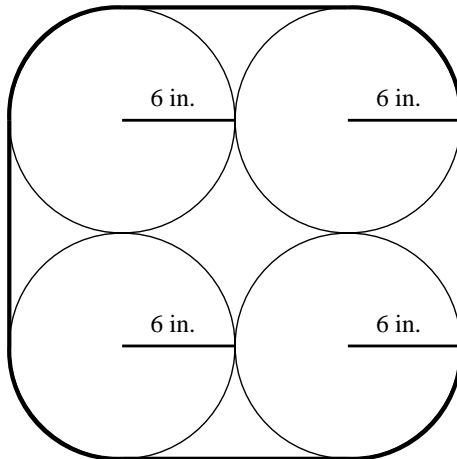


4. The length of a rectangle increases by 20% and the width decreases by 20%. Find the percentage change in the area of the rectangle and indicate whether the area has increased or decreased.
5. The area of a circle is four times its circumference. Find the radius of this circle.
6. Find the volume of a cube with a surface area of  $24 \text{ in}^2$ .

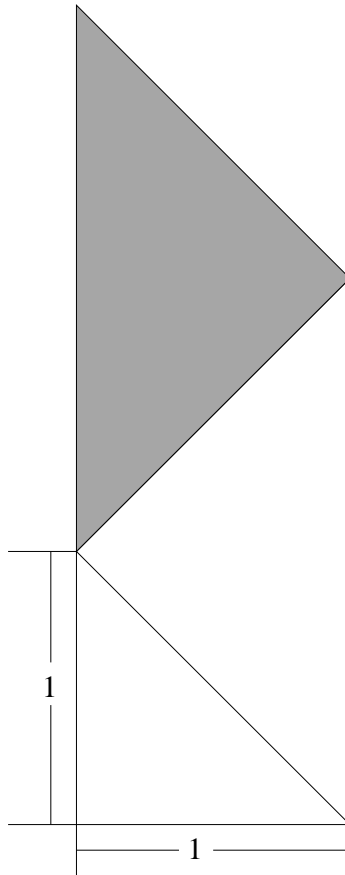
7. A circle is inscribed in a square, that is inscribed in a circle, that is inscribed in a square. The area of the largest square is  $108 \text{ in}^2$ . Find the area of the shaded circle.



8. An elastic band is placed around the top of 4 circular cans, each with a radius of 6 inches. Find the length of the stretched band.

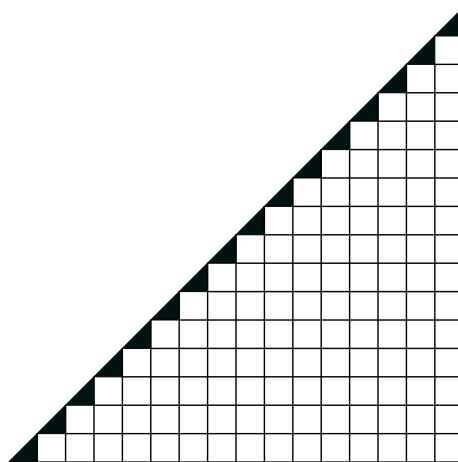


9. Find the area of the shaded triangle.

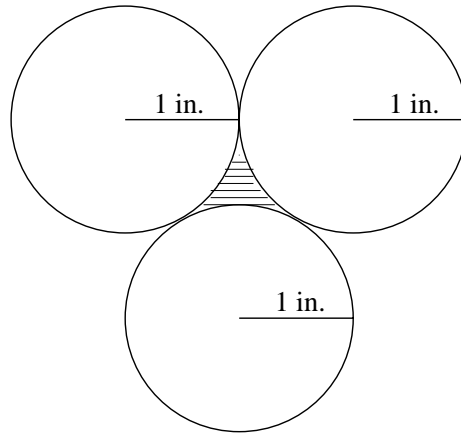


10. The square of the sum of two numbers is 64 and the sum of the squares of the two numbers is 34. Find the product of the two numbers.

11. Find the ratio of the shaded area to the unshaded area.

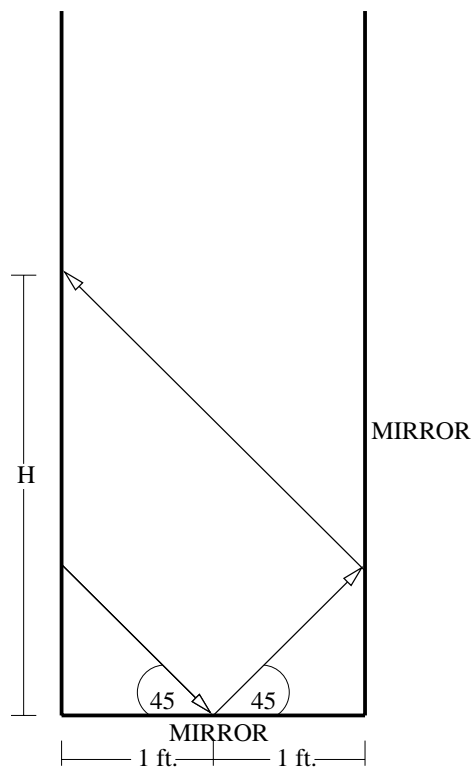


12. Find the area of the shaded region shown below that is bounded by the 3 circles of radius 1 in.



13. The tip of a cone with a circular base radius of 10 inches and a height of 8 inches is removed with a horizontal slice 3 inches below the tip. Find the radius of the circle that is formed.
14. An open rectangular box is to be constructed with single ply cardboard on the sides and double ply on the bottom. Single ply cardboard costs 10 cents per square foot and double ply runs 15 cents per square foot. What is the cost of a box with square base and height twice its length if the volume is to be  $54 \text{ ft}^3$ .

15. A beam of light reflects from the mirrors as shown. Find the quantity  $H$  in the figure.



16. Find the  $y$ -coordinate of the point on the  $y$  axis equidistant from  $(5, -5)$  and  $(1, 1)$ .