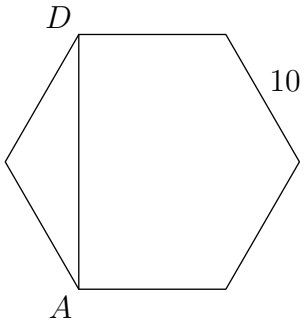
Name _____

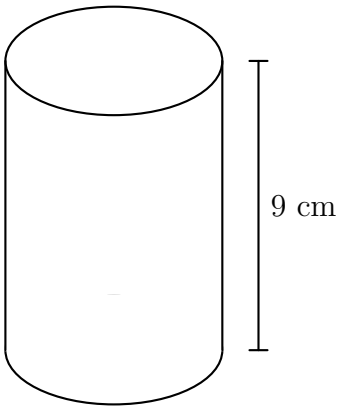
Practice 3

1. _____ Find the number of units in the length of diagonal DA of the regular hexagon shown. Express your answer in simplest radical form.

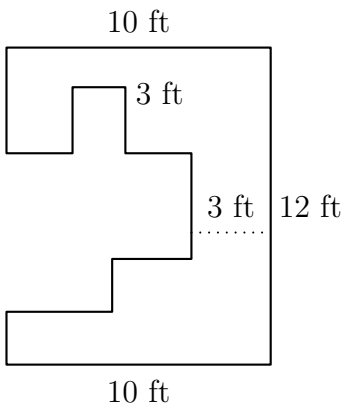


2. _____ The radius of a right circular cylinder is decreased by 20% and its height is increased by 25%. What is the absolute value of the percent change in the volume of the cylinder?

3. _____ A right circular cylinder has a volume of 144π cm^3 and a height of 9 cm. What is the area of its base? Express your answer in terms of π.



4. _____ If all the angles in the figure shown are right angles, what is the perimeter of the figure?



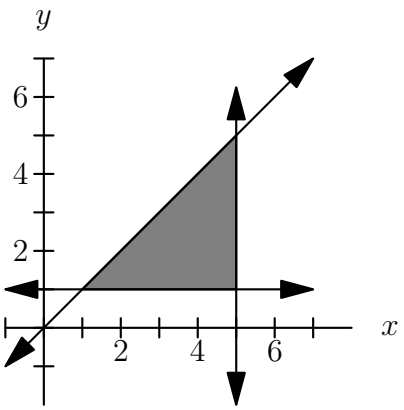
5. _____ An antacid tablet is in the shape of a right circular cylinder. The diameter of the base is $\frac{3}{4}$ inches and the tablet is $\frac{3}{16}$ inches thick. How many cubic inches are in the volume of the tablet? Express your answer as a common fraction in terms of π.

6. _____ Mrs. Read can knit one pair of children's mittens with a ball of yarn six inches in diameter. How many pairs of identical mittens can she knit with a ball of yarn twelve inches in diameter? Assume that the balls of yarn are rolled consistently.

7. _____ If the volume of a sphere inscribed in a cube is $\frac{\pi}{6}$ cubic inches, what is the number of cubic inches in the volume of the cube?

8. _____ A piece of wire 72 cm long is cut into two equal pieces and each is formed into a circle. What is the sum, in square centimeters, of the areas of these circles?

9. _____ A region in the coordinate plane is bounded by $y = x$, $x = 5$ and $y = 1$. What is the area of this region?



10. _____ A point P is located in the interior of rectangle $ABCD$ such that $PB = 25$ cm. A point Q is located on $\overline{AB}$ such that $\overline{PQ}$ is perpendicular to $\overline{AB}$. If all lengths are measured in centimeters, $AQ = PQ$, $\overline{PQ}$ has the smallest integer length possible and $\overline{BQ}$ is of integer length, what is the length of $\overline{AB}$?