

All answers must be exact and *NOT* decimal approximation. Radicals should be expressed in simplest radical form, and fractions should be expressed in lowest terms.

1. _____ Find the degree of an angle that is supplementary to a 45° angle.

2. _____ Determine the sum of the exterior angles of a regular hexagon in degrees.

3. _____ Find the area of an isosceles right triangle with the length of the hypotenuse being 4.

4. _____ Find the length of the side of a regular hexagon that is inscribed inside a circle of radius 6.

5. _____ Determine the locus of all points equidistant from two concentric circles with the same center O , and radii r and R .

6. _____ Find the height of the trapezoid with two bases length 2 in, 4 in respectively, and area 4 in².

7. _____ An isosceles trapezoid has a perimeter of 12 in, the length of the sum of the bases are twice as long as the length of the sum of the non-parallel sides. Find the length of the non-parallel side.
8. _____ Determine the area of the circle passing through the points $(0, 2)$, $(\sqrt{2}, \sqrt{2})$ and $(1, \sqrt{3})$.
9. _____ Find the side length of a cube if the length of the diagonal is 3 in.
10. _____ Find the ratio of the areas of the two concentric circles whose diameters are 6 in and 8 in.
11. _____ Find the area of a circle that is inscribed inside a square of area 16 cm^2 .
12. _____ Determine the location of the orthocenter of a right triangle, assuming the measure of $\angle ABC$ is 90° .
13. _____ Find the area of the regular hexagon inscribed in a unit circle.
14. _____ Find the area of an equilateral triangle having a side of length 9 cm.

15. _____ The areas of two similar polygons are 36cm^2 and 196 cm^2 . If a side of the larger polygon measures 20 cm, find the measure of the corresponding side of the smaller polygon.
16. _____ In a circle of diameter 10 in, find the angle of a sector that cuts 8 in of arc.
17. _____ In $\triangle ABC$, let M be the midpoint of \overline{AB} . If $\angle ACB$ is a right angle then what is $\frac{AM}{MC}$?
18. _____ A circle is inscribed in a square with a side of length 7 cm. Calculate the area that is inside the square but outside the circle.
19. _____ Find the center and the radius of the circle $x^2 - x + y^2 + 4y = 0$.