

Top 10 things to know about circles

1. A circle is the set of points in a plane that are equidistant from a given point O called the center.
2. The distance r from the center is called the radius, and the point O is called the center. Twice the radius is known as the diameter, $d = 2r$.
3. The angle a circle subtends from its center is a full angle, equal to 360° or 2π radians.
4. The perimeter C of a circle is called the circumference, and is given by $C = 2\pi r = \pi d$.
5. The area of a circle is given by $A = \pi r^2$.
6. A central angle is an angle with endpoints A and C located on a circle's circumference and vertex O located at the circle's center.
7. For an inscribed angle and central angle with the same endpoints,

$$\angle AOC = 2\angle ABC$$

8. A tangent to a circle at a point p is perpendicular to the radius OP .
9. The circumcircle is a triangle's circumscribed circle, i.e., the unique circle that passes through each of the triangle's three vertices. The center O of the circumcircle is called the circumcenter, and the circle's radius R is called the circumradius. A triangle's three perpendicular bisectors (i.e. the line perpendicular to the side from the midpoint of the side) meet at O .
10. The incircle is the inscribed circle of a triangle, i.e., the unique circle that is tangent to each of the triangle's three sides. The center I of the incircle is called the incenter, and the radius r of the circle is called the inradius. The incenter is the point of concurrence of the triangle's angle bisectors.

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