

Writing and Graphing Circle Equations

Grade 10 – Geometry math · Test · Standards: G-GPE.A.1

Name: _____ Date: _____ Class: _____

This test has 8 questions worth 20 points and is designed for 45 minutes. A calculator is allowed. Write circle equations in standard form and justify every classification with a computed number.

Standards: G-GPE.A.1 · **Level:** Grade 10 Geometry

Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Write the Equation (2 points)

Write the equation of the circle with center $(-4, 7)$ and radius $3\sqrt{2}$.

Question 2 Read the Equation (2 points)

Find the center and radius of $(x + 7)^2 + (y - 3)^2 = 50$. Write the radius in simplest radical form.

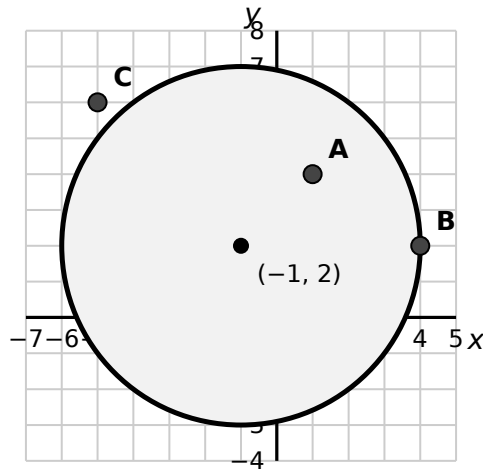
Question 3 Circle from a Diameter (3 points)

A circle has a diameter with endpoints $(-3, -5)$ and $(9, 1)$. Write its equation.

Question 4 Complete the Square (3 points)

Rewrite $x^2 + y^2 + 10x - 6y - 2 = 0$ in standard form and give the center and radius.

Question 5 Inside or Outside (3 points)



Circle with center $(-1, 2)$ and radius 5.

Write the equation of the circle and classify each labeled point as inside, on or outside. (1 point for the equation, 1 point per two points classified)

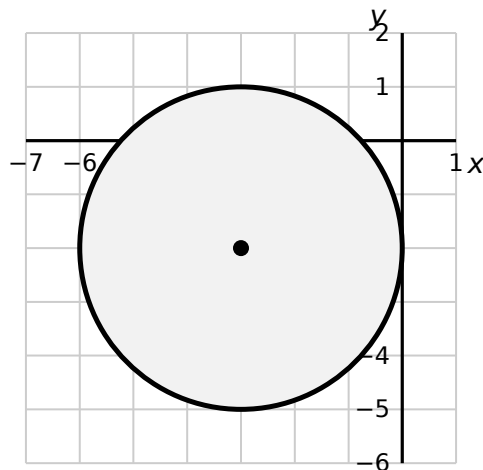
Question 6 Radio Station Range (3 points)

On a map with 1 unit = 1 mile, a radio transmitter at $(7, -2)$ broadcasts 9 miles in all directions. (a) Write the equation of the boundary of its range. (1 point) (b) Is a school at $(1, 4)$ in range? (2 points)

Question 7 Tangent to Both Axes (2 points)

A circular logo with radius 9 centimeters sits in the upper-left corner of a grid, touching both the x-axis and the y-axis in the second quadrant. Write the equation of its edge.

Question 8 Read a Graph (2 points)



A pond drawn on the grid.

A pond appears on a map grid as shown. Give the equation of its shoreline.