

Algebra 3 Assignment # 3

Circles

(1) Find the center and radius of each of the following circles please.

(a) $(x - 2)^2 + (y - 5)^2 = 49$

(b) $(x + 6)^2 + y^2 = 100$

(2) Sketch a graph of each of the following circles please.

(a) $x^2 + y^2 - 6x - 4y + 9 = 0$

(b) $x^2 + y^2 + 4x - 8y - 5 = 0$

(c) $x^2 + y^2 - 10x + 4y + 20 = 0$

(d) $x^2 + y^2 + 2y = 0$

(3) Write the equation of the circle if the endpoints of a diameter are $(-5, 6)$ and $(1, 4)$.

(4) Write the equation of the line which is tangent to the circle $x^2 + y^2 = 13$ at the point $(2, 3)$.

(5) Write the equation of the line which is tangent to the graph of the circle $x^2 + y^2 - 2x + 8y - 17 = 0$ at the point $(6, -1)$.

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Answers

(1) (a) center $(2, 5)$, radius = 7

(b) center $(-6, 0)$, radius = 10

(2) (a) $(x - 3)^2 + (y - 2)^2 = 4$

(b) $(x + 2)^2 + (y - 4)^2 = 25$

(c) $(x - 5)^2 + (y + 2)^2 = 9$

(d) $(x - 0)^2 + (y + 1)^2 = 1$

(3) $(x + 2)^2 + (y - 5)^2 = 10$

(4) $y = -\frac{2}{3}x + \frac{13}{3}$

(5) $y = -\frac{5}{3}x + 9$