Intersection of Circles & Lines

1. Graph the line given by $2x + y = 1$ and the circle given by $x^2 + y^2 = 10$. Find all solutions to the system of equations. Verify your result both algebraically and graphically.
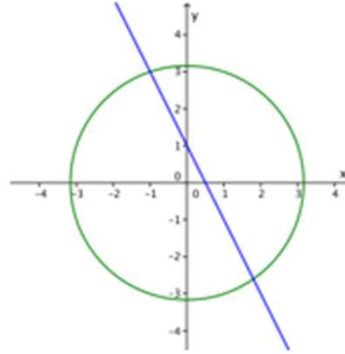
2. Graph the line given by $4x + 3y = 0$ and the circle given by $x^2 + y^2 = 25$. Find all solutions to the system of equations. Verify your result both algebraically and graphically.

3. Graph the line given by $x - y = 3$ and the circle given by $(x - 2)^2 + (y + 3)^2 = 4$. Find all solutions to the system of equations. Verify your result both algebraically and graphically.
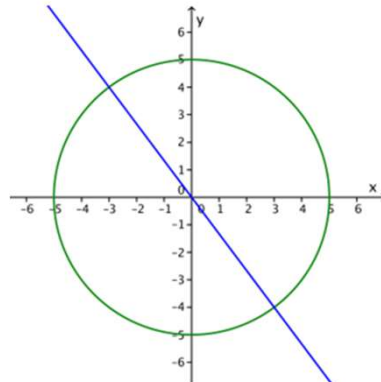
Intersection of Circles & Lines

1. Graph the line given by $2x + y = 1$ and the circle given by $x^2 + y^2 = 10$. Find all solutions to the system of equations. Verify your result both algebraically and graphically.

The line and circle intersect at $(-1, 3)$ and $\left(\frac{9}{5}, -\frac{13}{5}\right)$, which are the two solutions.

2. Graph the line given by $4x + 3y = 0$ and the circle given by $x^2 + y^2 = 25$. Find all solutions to the system of equations. Verify your result both algebraically and graphically.

The line and circle intersect at $(-3, 4)$ and $(3, -4)$, which are the two solutions.

3. Graph the line given by $x - y = 3$ and the circle given by $(x - 2)^2 + (y + 3)^2 = 4$. Find all solutions to the system of equations. Verify your result both algebraically and graphically.

The solution is the two points $(0, -3)$ and $(2, -1)$.

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