

Section 10.9 Notes

Systems of Inequalities

Definitions

- A *system of inequalities* a list of inequalities
- The *solution* to a system of inequalities consists of region(s) of space which, when you plug in points from that region, make all the inequalities true.

Method

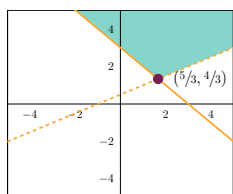
1. Graph each inequality as if it were an equation, except:
 - If the inequality is $\leq, \geq$, then use a solid line.
 - If the inequality is $<, >$, then use a dashed/dotted line.
2. Use one or more test points to determine which regions get shaded.

Examples

Graph the solution and label the points of intersection on the boundaries.

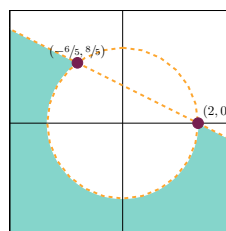
1.

$$\begin{aligned}x + y &\geq 3 \\ x - 2y &< -1\end{aligned}$$



2.

$$\begin{aligned}x^2 + y^2 &> 4 \\ x + 2y &< 2\end{aligned}$$



3.

$$\begin{aligned}x^2 + y^2 &\leq 25 \\ 9y &\geq 4x^2\end{aligned}$$

