

5.7 Systems of Inequalities

Notes

1) Graph the system of inequalities $\begin{cases} y \geq 4 - \frac{1}{2}x \\ y < -6 + 3x \end{cases}$

- a. First graph the top inequality. Shade in the area above the solid line lightly or use “stripes”.
- b. Then graph the bottom inequality. Shade in the area below the dashed line lightly or use “stripes”.
- c. For each of the following points, find out if the top inequalities would be **true** or **false**. Also, plot each of the points on your graph.

i. (0,0)

ii. (6,-2)

iii. (-4,8)

iv. (6,6)

Top: T or F

Top: T or F

Top: T or F

Top: T or F

Bottom: T or F

Bottom: T or F

Bottom: T or F

Bottom: T or F

- d. Only one of the four points in part (c) should be true for both inequalities. What part of the graph is that point part of?
- e. The part of the graph that is shaded for *both* inequalities is called the **solution to the system of inequalities**. Each point in that area makes **both** inequalities true.

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