Math Virtual Learning

College Algebra

May 11, 2020

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Lesson: May 11, 2020

Objective/Learning Target: Students will able to Systems of Inequalities involving conics.
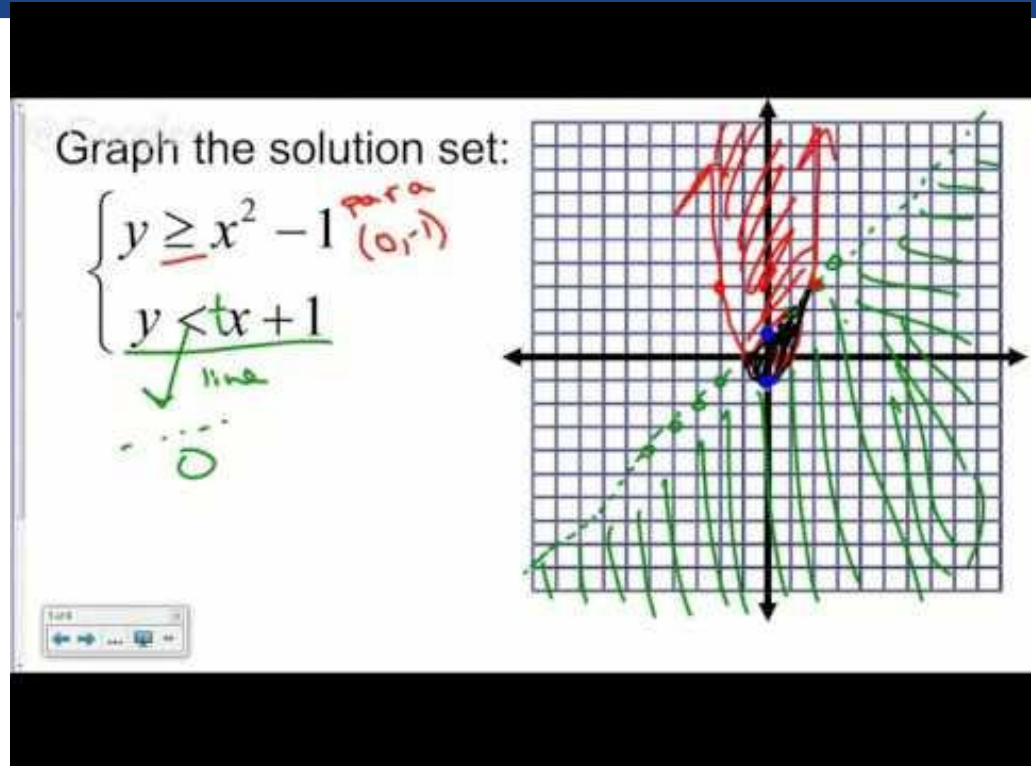
Warm Up Activity:

Click the link below and practice solving linear systems of Inequalities.

[System of Linear Inequalities](#)

Lesson:

Watch the video over conic systems of inequalities. We encourage you to have your own sheet of paper out and work along with the video.

Graph the solution set:

$$\begin{cases} y \geq x^2 - 1 \\ y < x + 1 \end{cases}$$

Practice: Graph the systems

1. $x^2 - y \leq 0$
   $2x^2 + y \leq 12$

2. $x^2 + y < 1$
   $y > 2x$

3. $x^2 + y^2 < 25$
   $3x^2 - y^2 > 12$

Practice: ANSWERS

1.

$(-2, 4)$ $(2, 4)$

2.

$\left(\sqrt{2} - 1, 2(\sqrt{2} - 1)\right)$

$\left(-1 - \sqrt{2}, -2(1 + \sqrt{2})\right)$

Practice: ANSWERS

3.

$\left(-\dfrac{\sqrt{37}}{2}, \dfrac{3\sqrt{7}}{2}\right)$

$\left(\dfrac{\sqrt{37}}{2}, \dfrac{3\sqrt{7}}{2}\right)$

$\left(-\dfrac{\sqrt{37}}{2}, -\dfrac{3\sqrt{7}}{2}\right)$

$\left(\dfrac{\sqrt{37}}{2}, -\dfrac{3\sqrt{7}}{2}\right)$
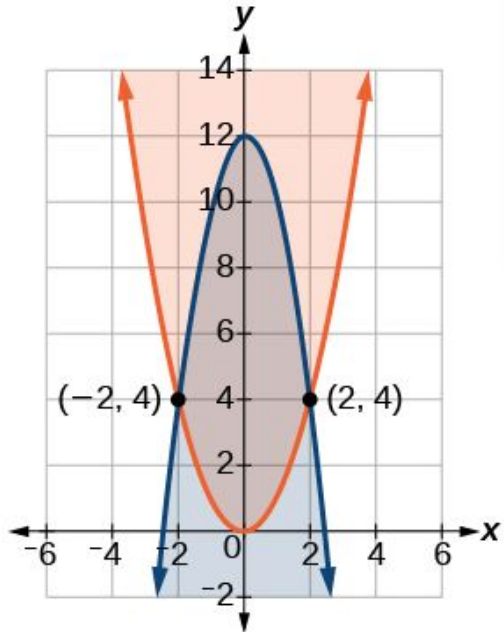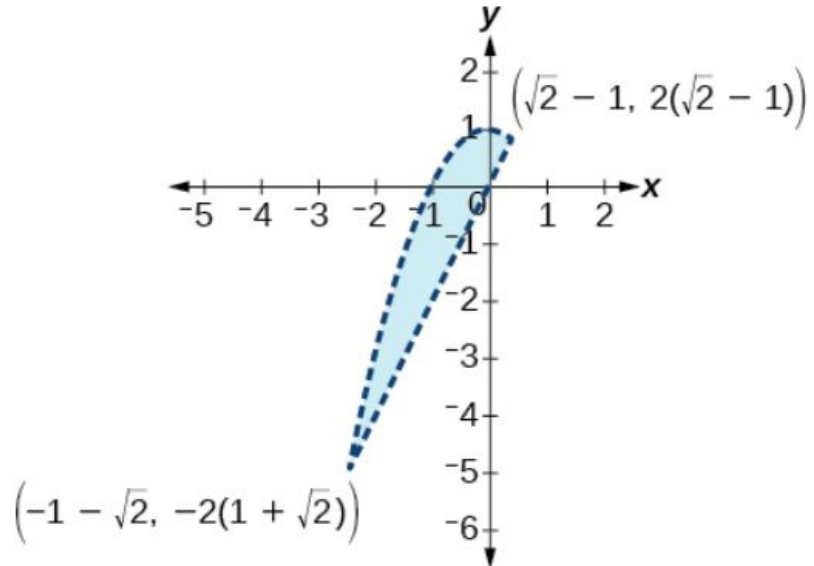
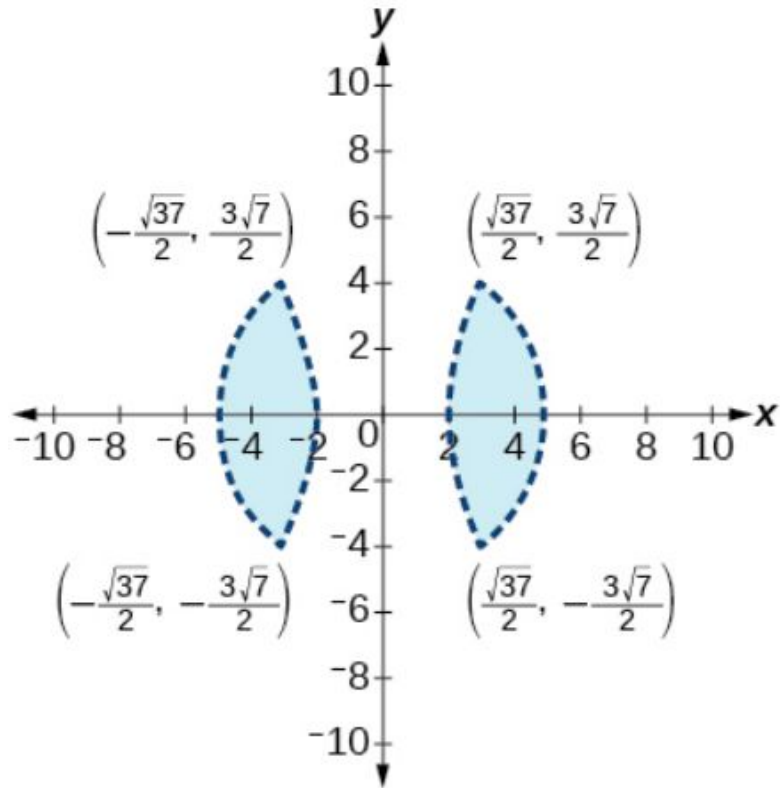**Additional Practice:** [A Link to Additional Problems pp 506 & 507](#)

Graph the solution set of each system of inequalities.

1)
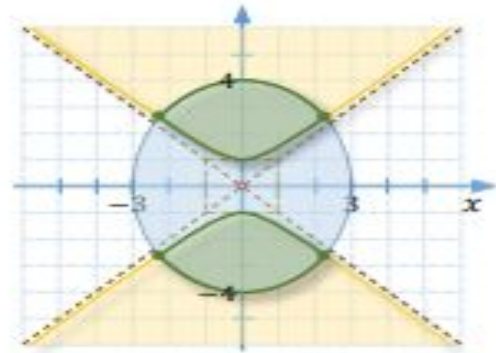$$\begin{cases} x^2 + y < 4 \\ y - x \geq 2 \end{cases}$$

2)
$$\begin{cases} \dfrac{x^2}{9} + \dfrac{y^2}{16} \leq 1 \\ x^2 - y^2 \geq -1 \end{cases}$$

Additional Practice Answers:

1)

2)

Solutions on pp 506 & 507