Algebra 1 6.6

* Ch. 5.6

Solve systems of linear inequalities by graphing

Apply systems of linear inequalities

linear inequality*

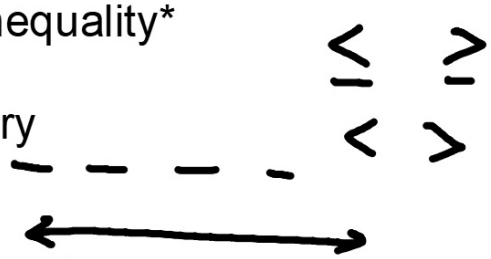
system

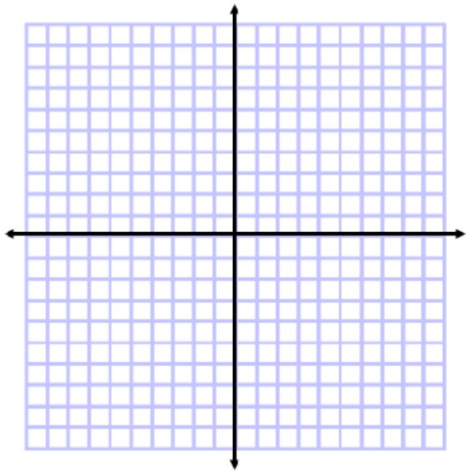
boundary

open

closed

Whiteboards



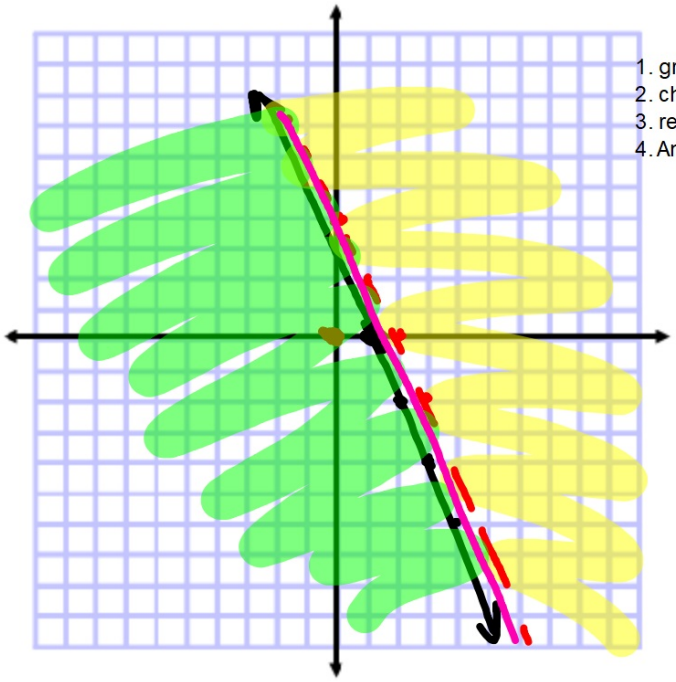


1B. $2x + y \geq 2$

$2x + y < 4$

$0 + 0 < 4$

$0 < 4$

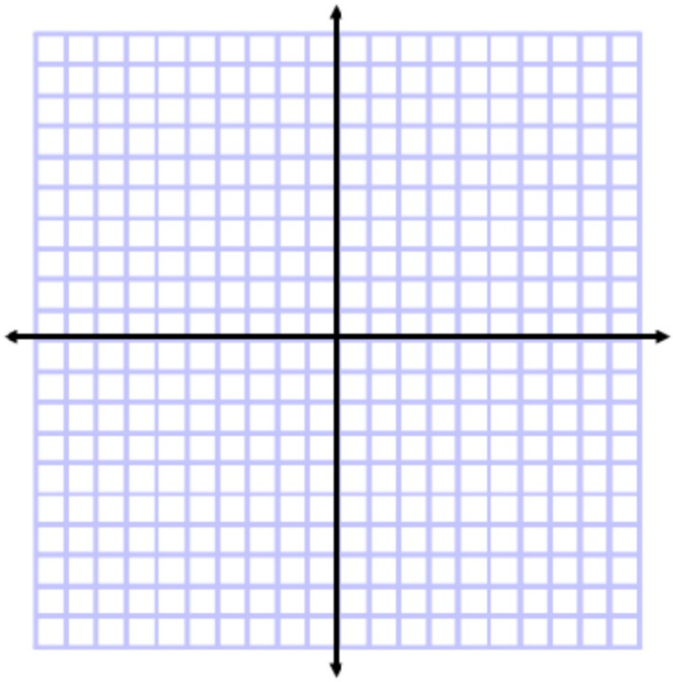


1. graph boundary (solid or dotted?)
2. choose a test point and shade T
3. repeat for other inequality
4. Answer?

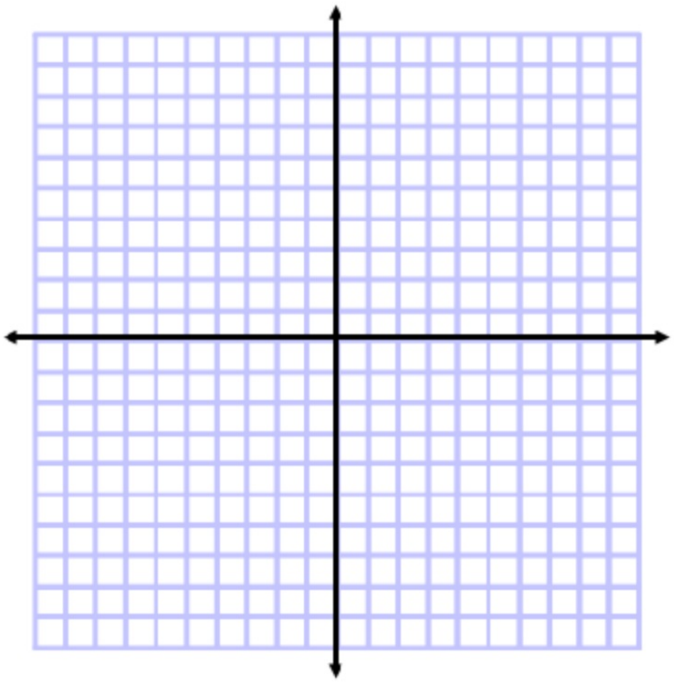
Whiteboards

1C. $y \geq -4$

$3x + y \leq 2$



1D. $x + y > 2$
$-4x + 2y < 8$

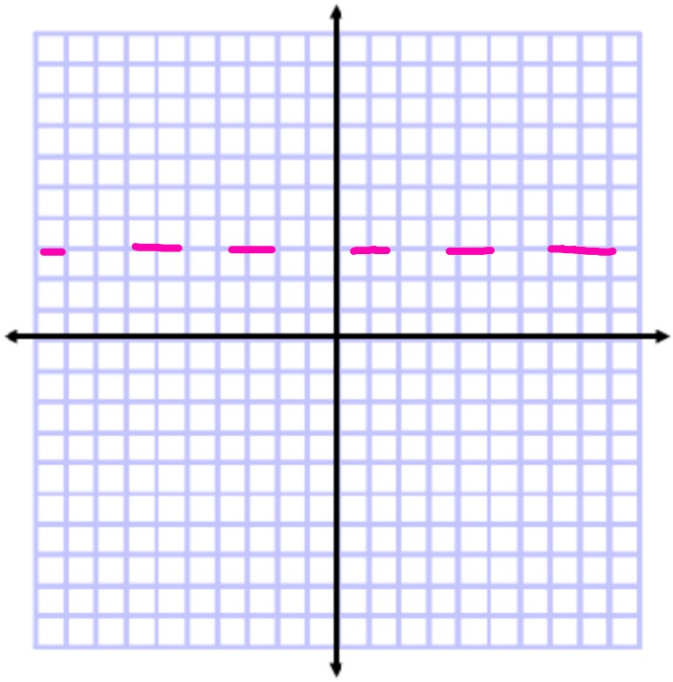


GuidedPractice

2A. $y > 3$
$y < 1$

$y = 3$

$y = 1$



GuidedPractice

3. FUNDRAISING The Theater Club is selling shirts. They have only enough supplies to print 120 shirts. They will sell sweatshirts for $22 and T-shirts for $15, with a goal of at least $2000 in sales.

s t

A. Define the variables, and write a system of inequalities to represent this situation. S = sweat t = t-shirt

B. Then graph the system.

C. Name one possible solution. 100 ss 10 + s

D. Is (45, 30) a solution? Explain. no

0 + 0 ≥ 2000

$22s + 15t \geq 2000$

$s + t \leq 120$ $s+t=120$ $-s \quad -s$

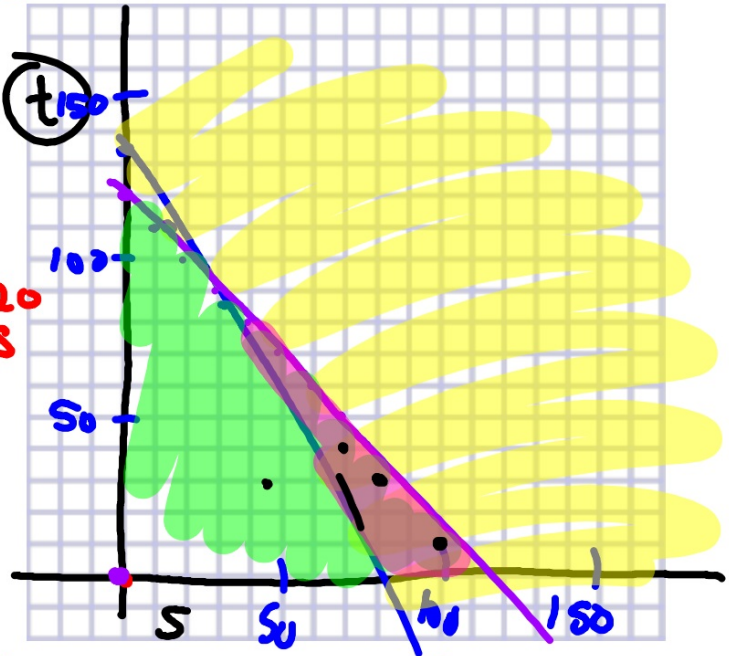
0 + 0 ≤ 120

$22s + 15t = 2000$

$-22s \quad -22s$

$\frac{15t}{15} = \frac{-22s}{15} + \frac{2000}{15}$

$t = -\frac{22}{15}s + 133$



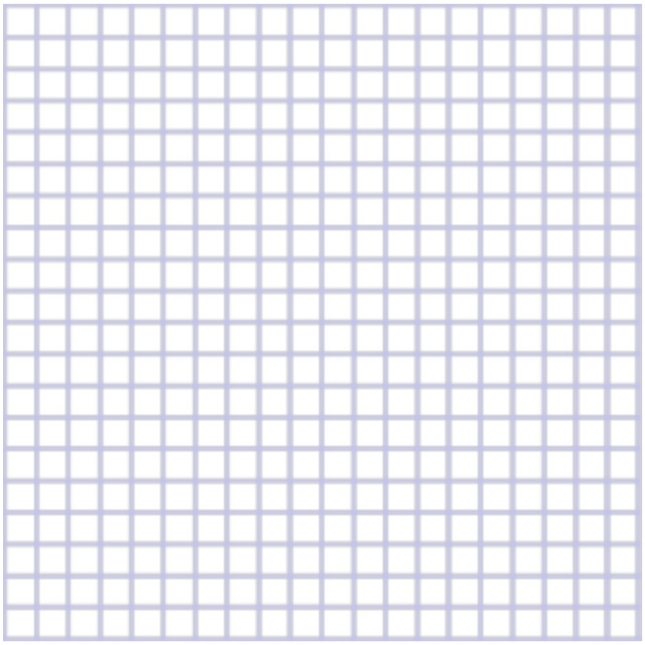
$t = -s + 120$ $\frac{-1}{1}$ $\frac{-10}{10}$

26. CCSS **MODELING** Josefina works between 10 and 30 hours per week at a pizzeria. She earns $6.50 an hour, but can earn tips when she delivers pizzas.

a. Write a system of inequalities to represent the dollars d she could earn for working h hours in a week.

b. Graph this system.

c. If Josefina received $17.50 in tips and earned a total of $180 for the week, how many hours did she work?



25. ICE RINKS Ice resurfacers are used for rinks of at least 1000 square feet and up to 17,000 square feet. The price ranges from as little as $10,000 to as much as $150,000.

a. Define the variables, and write a system of inequalities to represent this situation. Then graph the system.

b. Name one possible solution.

c. Is (15,000, 30,000) a solution? Explain.

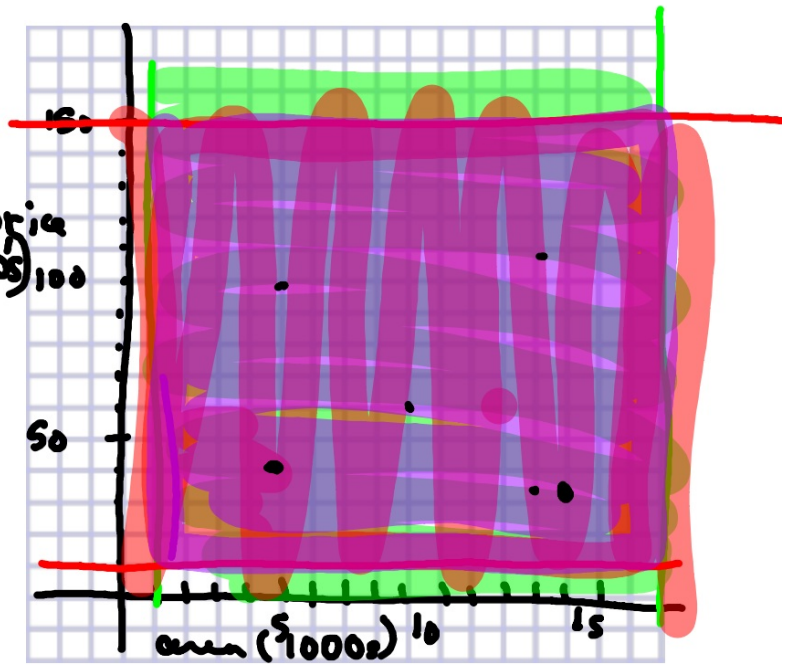
a = area yes

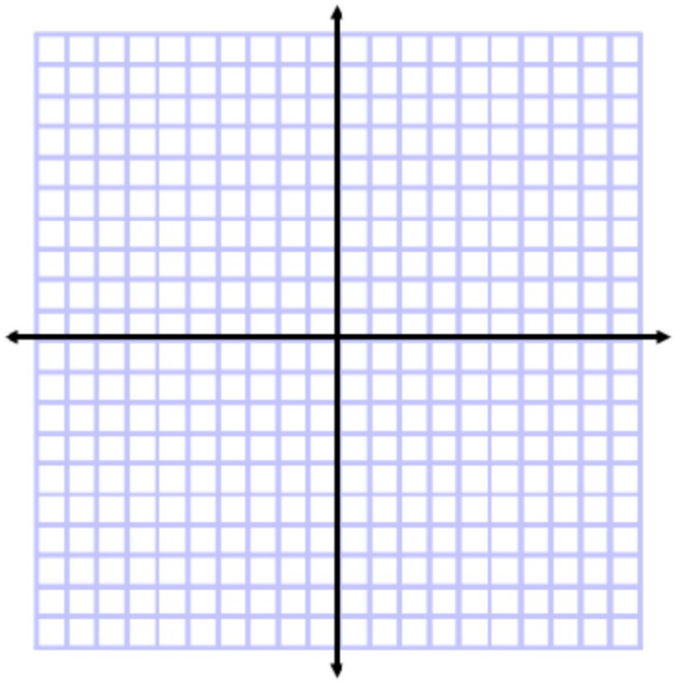
1000 — 17000

$10,000 — $150,000

p = price

(5, 40)



2B. $x + 6y \leq 2$

$y \geq -\frac{1}{6}x + 7$