

Writing Systems of Inequalities

MGSE9-12.A.REI.12 Graph the solution set to a linear inequality in two variables.

What am I learning today?

How to graph a system of inequalities

How will I show that I learned it?

Graph a system of inequalities and tell whether a point is in the solution set

Step 1: Graph equation 1 and shade on the correct half-plane.

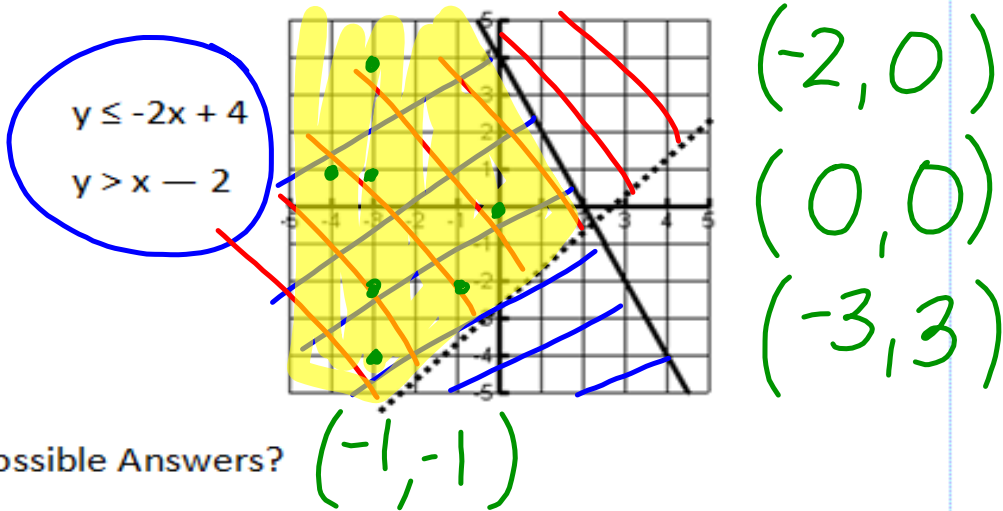
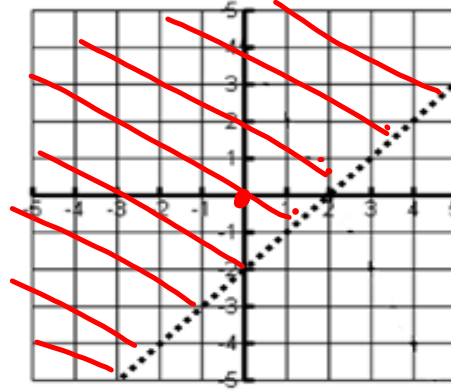
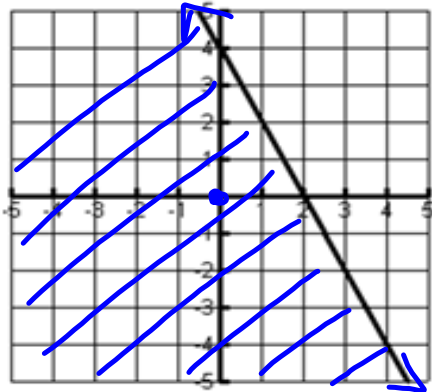
Step 2: Graph equation 2 and shade on the correct half-plane.

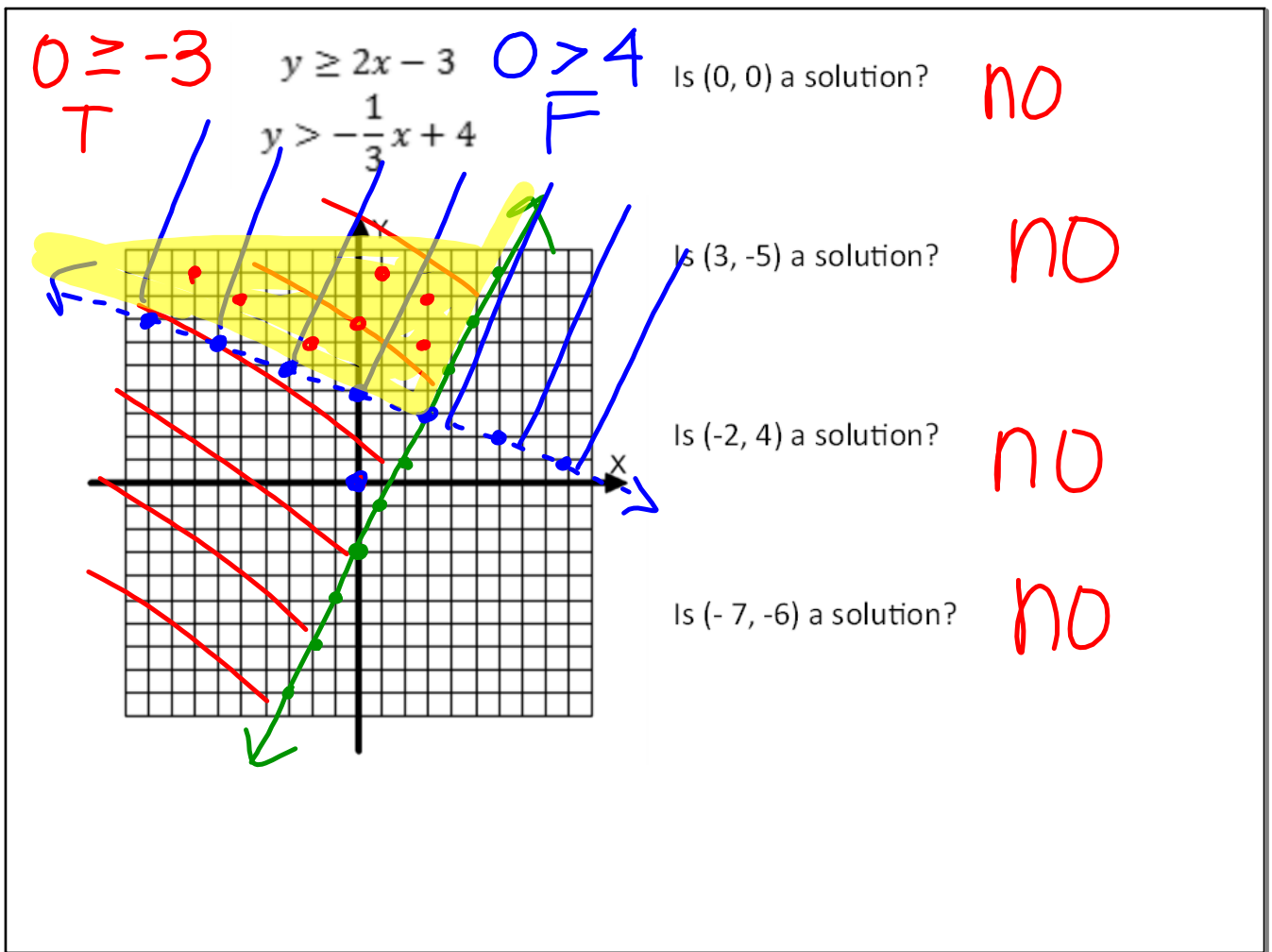
Step 3: The answers are any points in the region where the two shaded areas overlap.

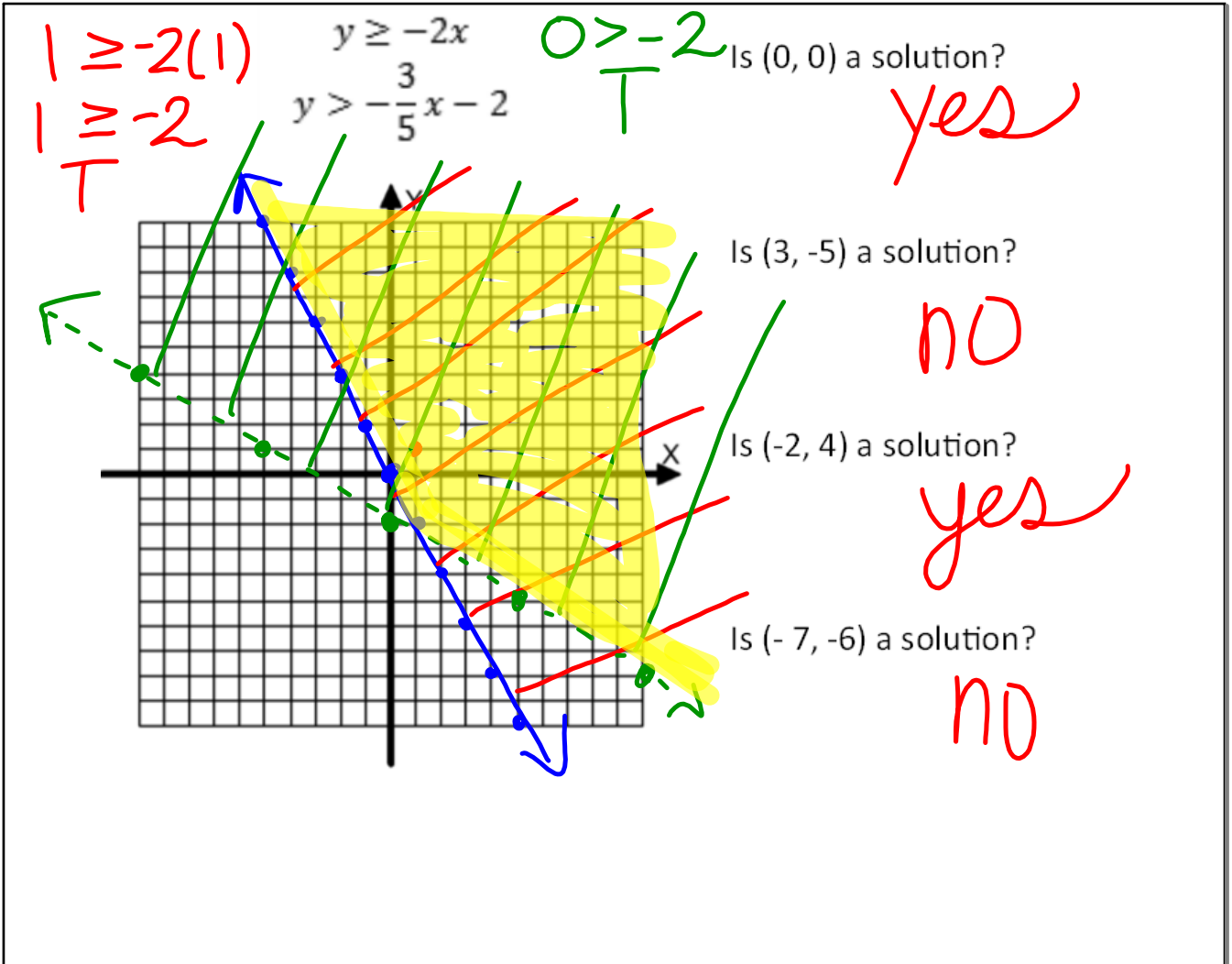
$0 \leq 4$
T

$0 \leq -2(0) + 4$
 $y \leq -2x + 4$

$0 > -2$ T
 $y > x - 2$







You own an M&M factory. You have 10 machines to process M&Ms. Each machine produces 100 bags of M&Ms. You can make either plain or peanut M&Ms in each machine. Plain M&Ms sell for \$2 per bag, and peanut sell for \$3 per bag. You want to make at least \$2400.

Define your variables:

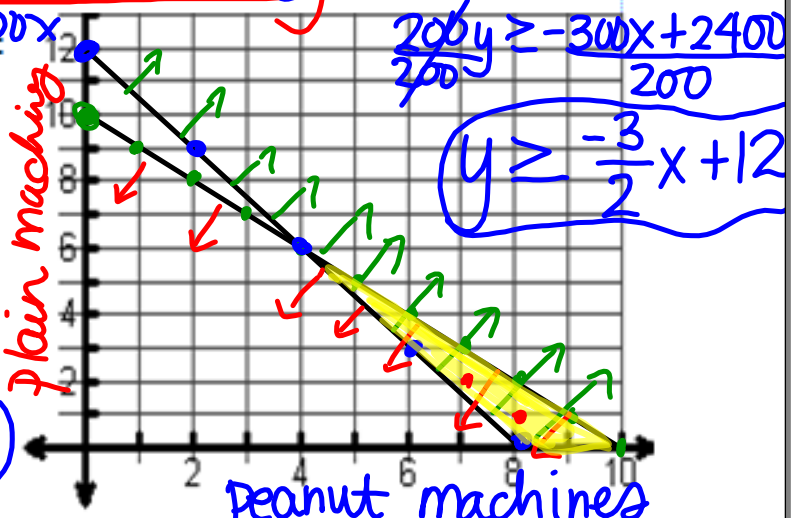
$x = \#$ of machines peanut
 $y = \#$ of machines plain

Write 2 inequalities:

1) $x + y \leq 10$ 2) $300x + 200y \geq 2400$

Graph your 2 inequalities:

$x + y \leq 10 - x$
 $-x$
 $y \leq -x + 10$



What are some possible solutions that use all of the machines?

- (4, 6)
- (6, 4)
- (10, 0)
- (8, 2)
- (5, 5)

What are some possible solutions that don't use all of the machines?

- (8, 1)
- (8, 0)
- (7, 2)
- (9, 0)

Is it possible to make only 1 type of M&M and still meet your goal?

yes