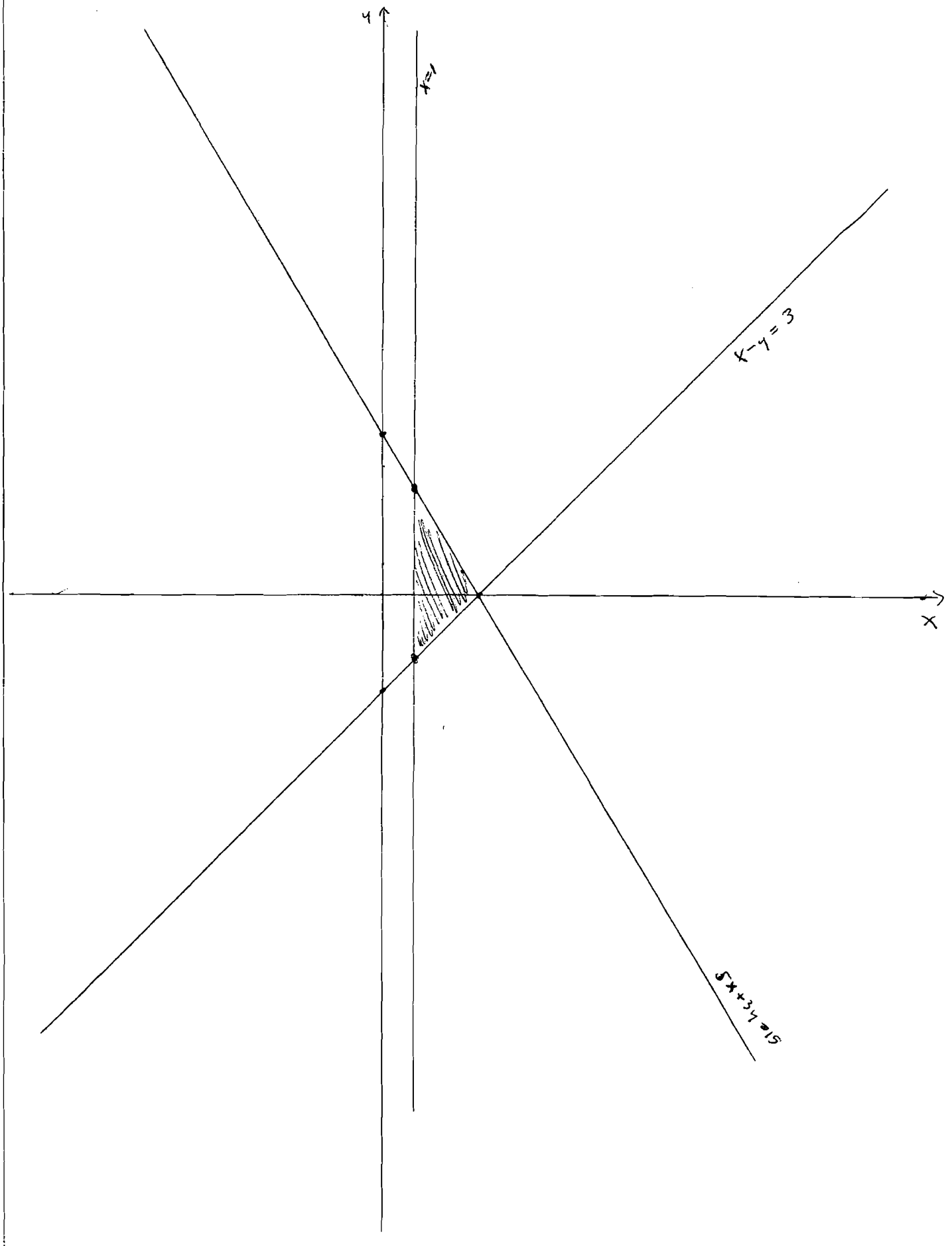
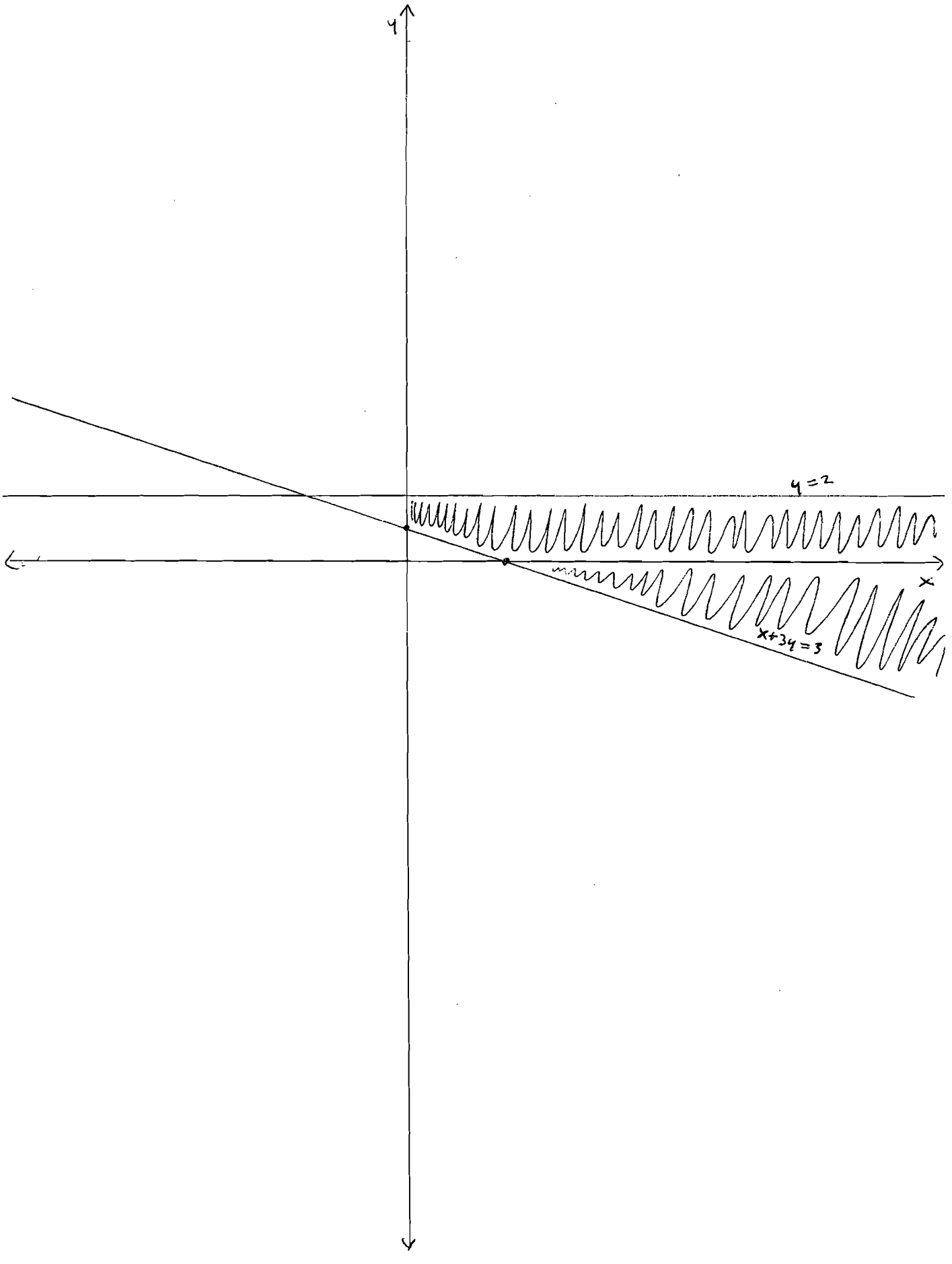
Problem

1



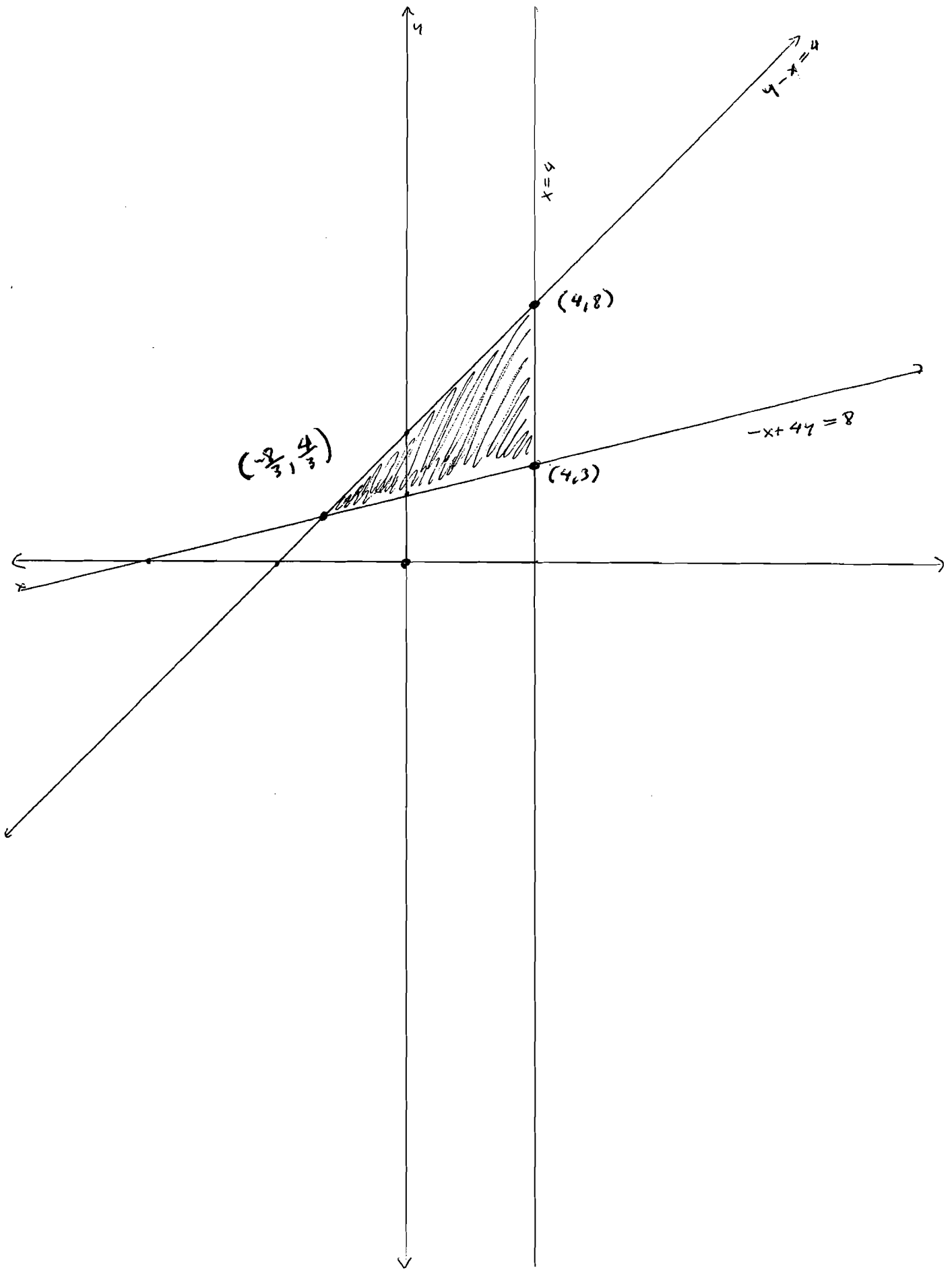
Problem

2

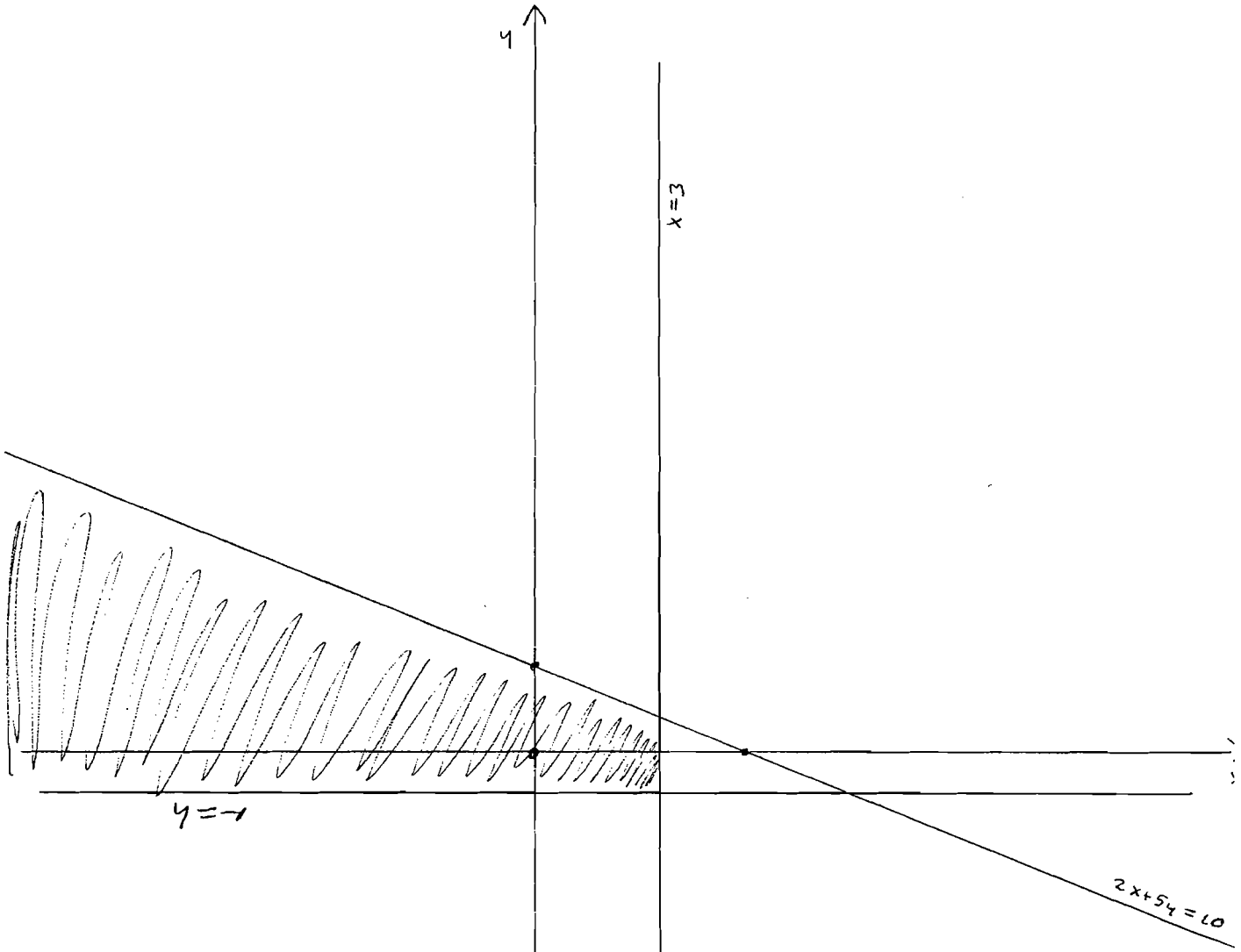


3

11

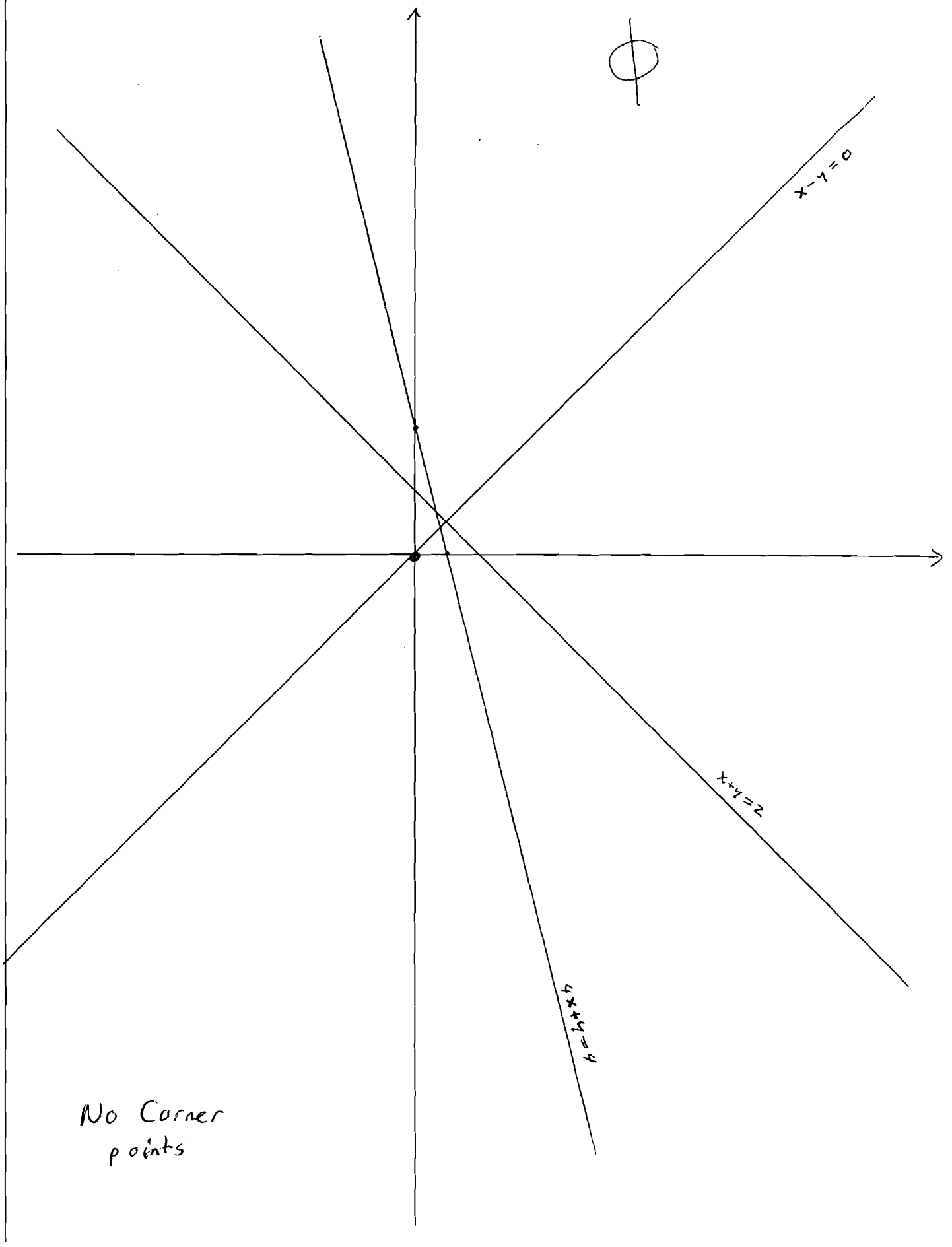


4

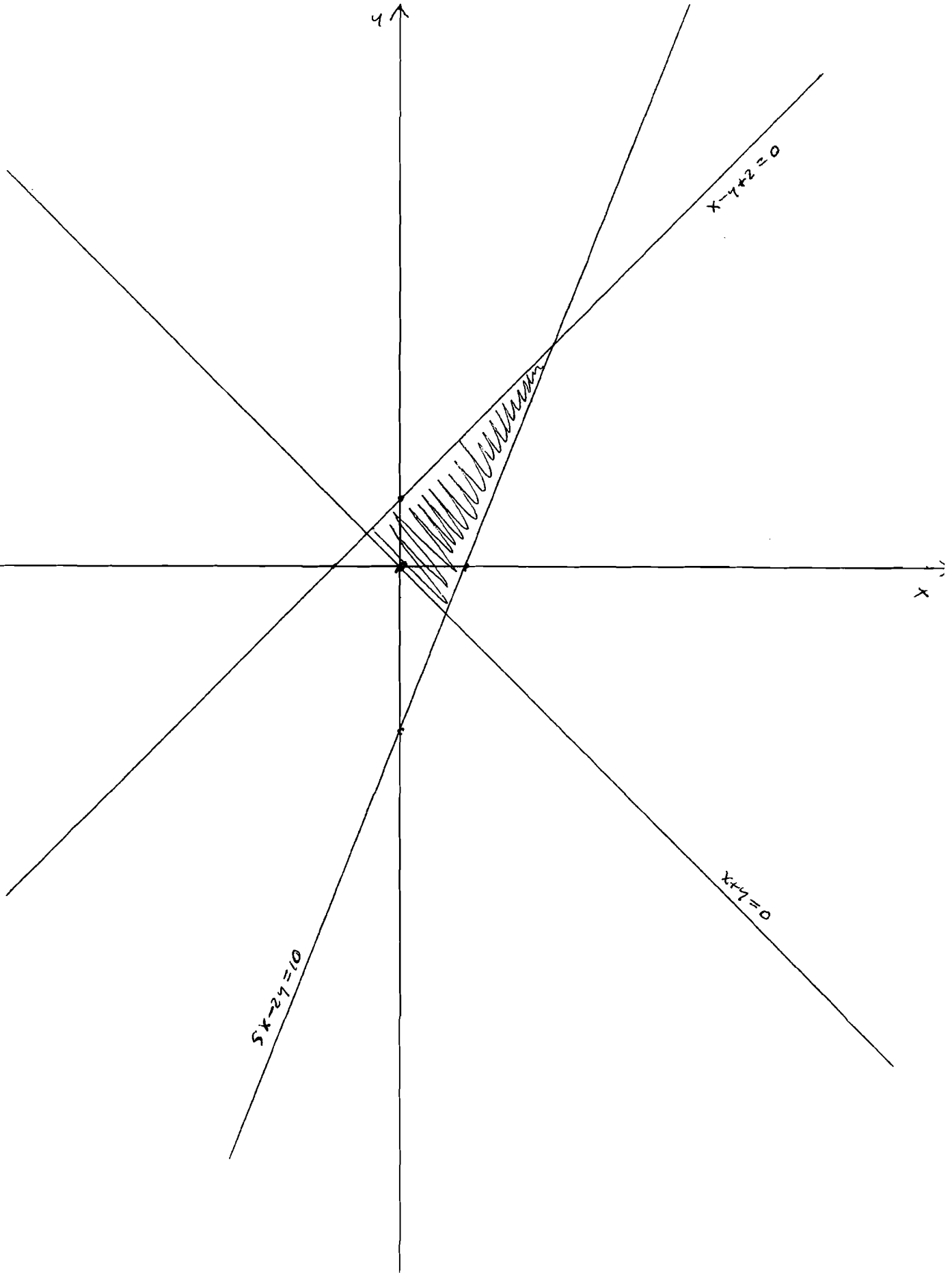


5

12

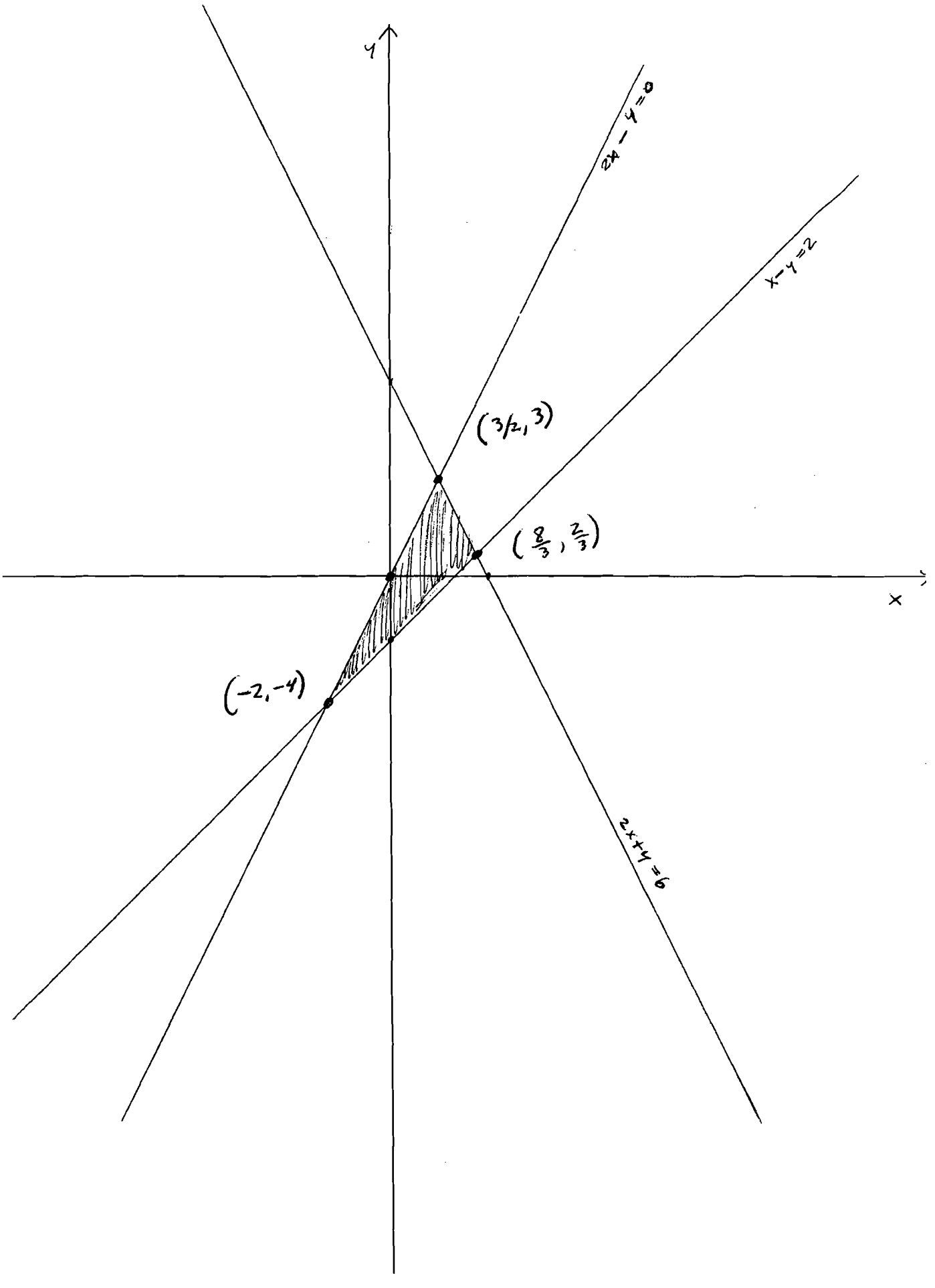


No Corner points

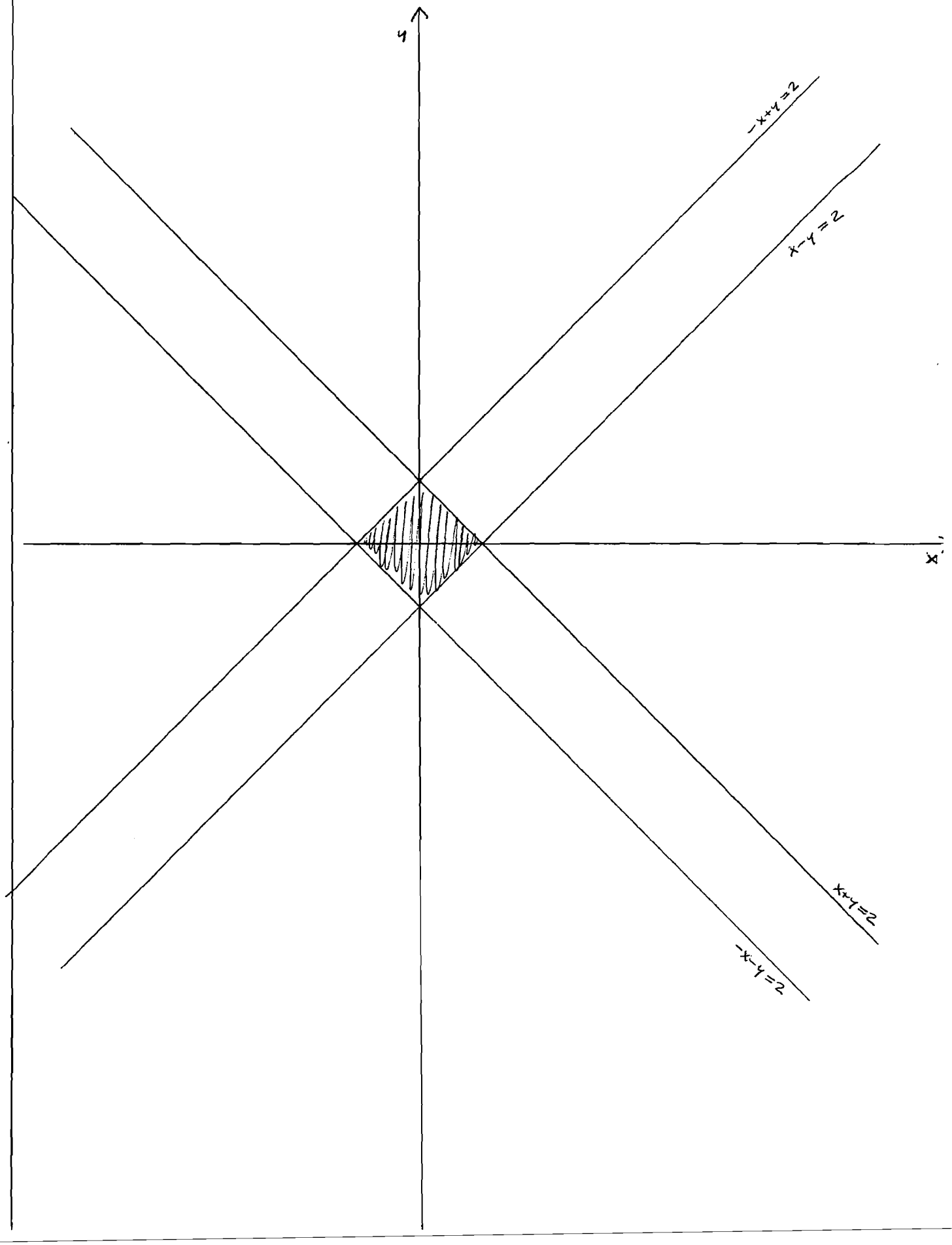

y
x
x-y+2=0
x+y=0
5x-2y=10

Problem 7

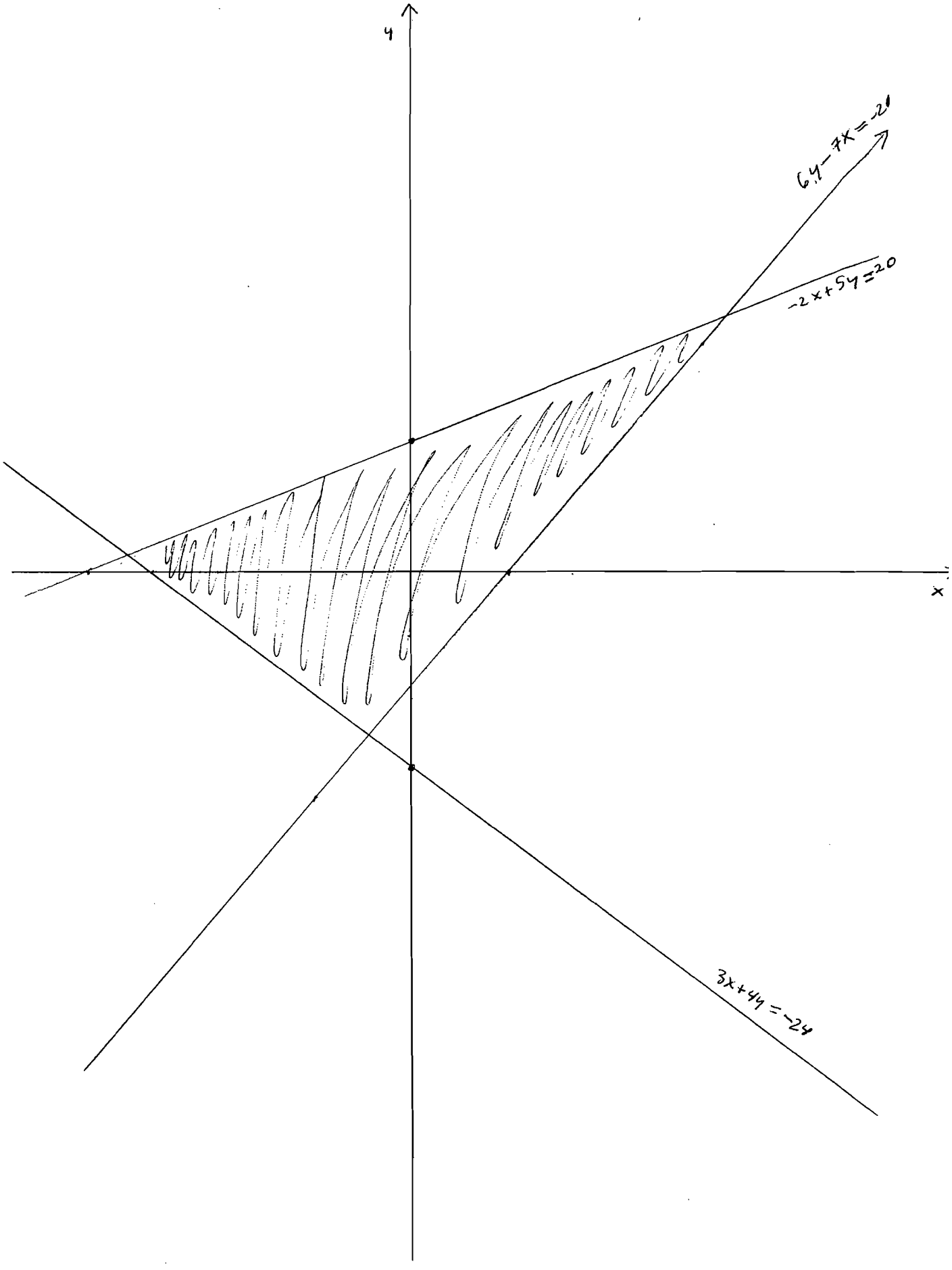
13



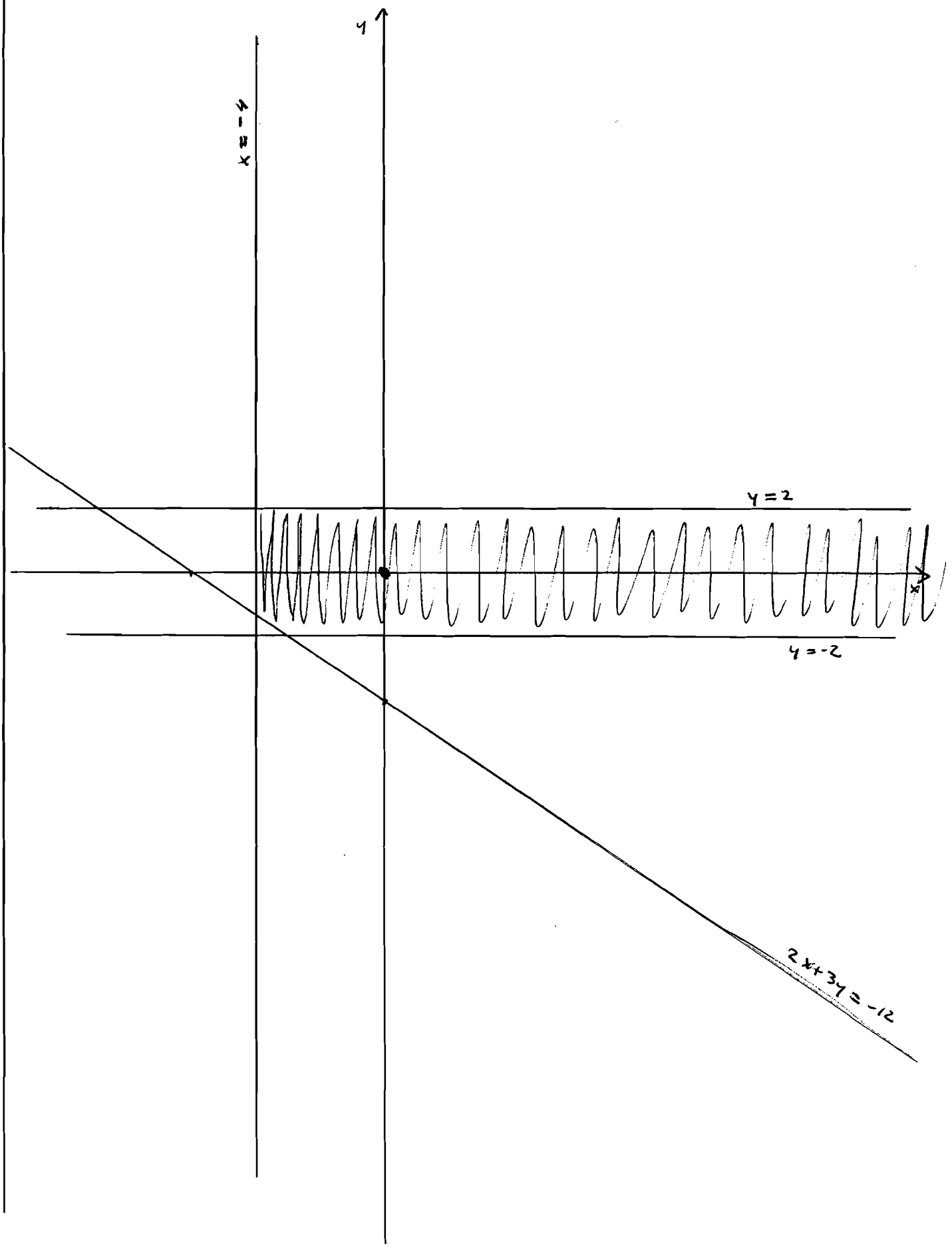
Problem 8

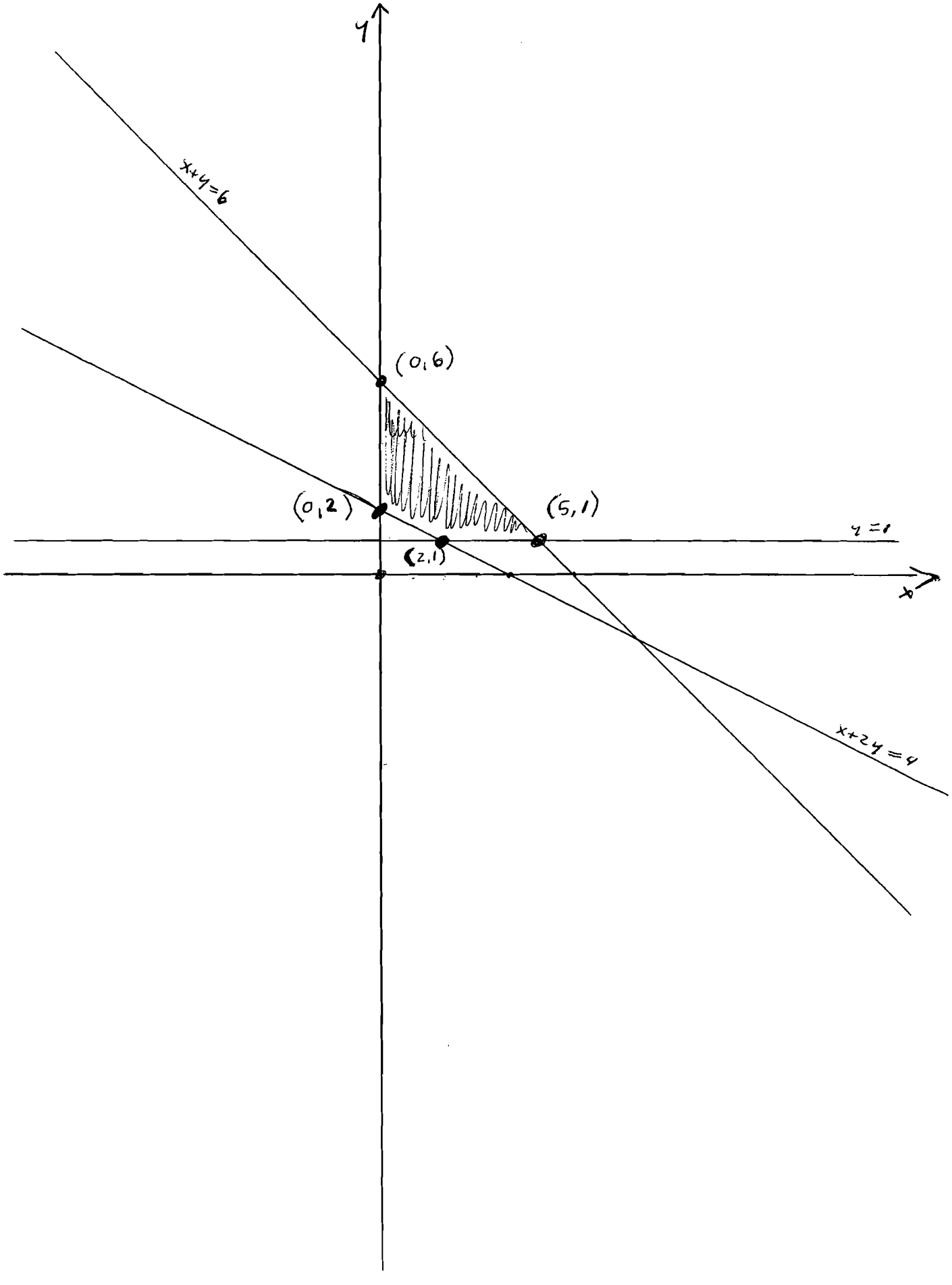


9

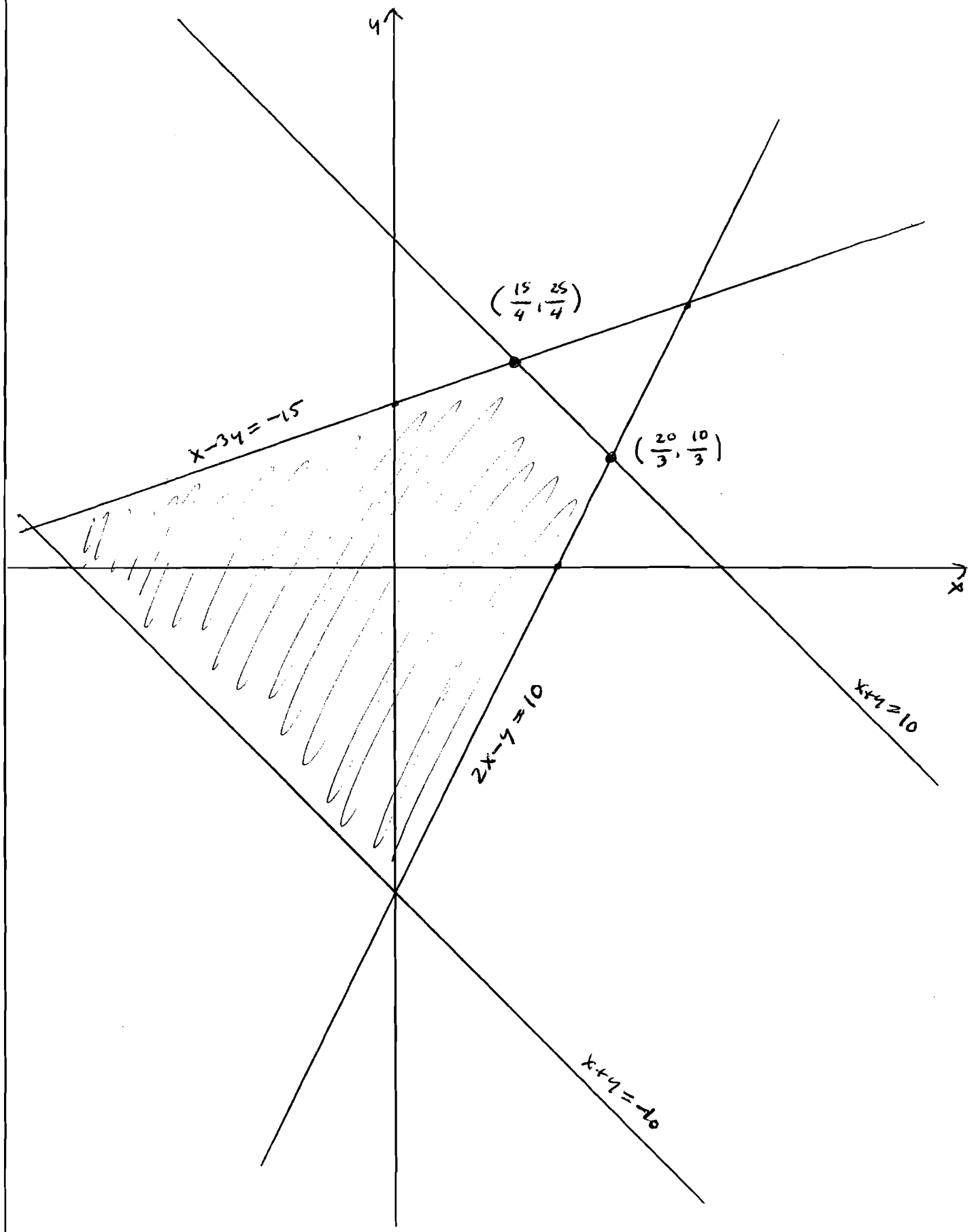


10



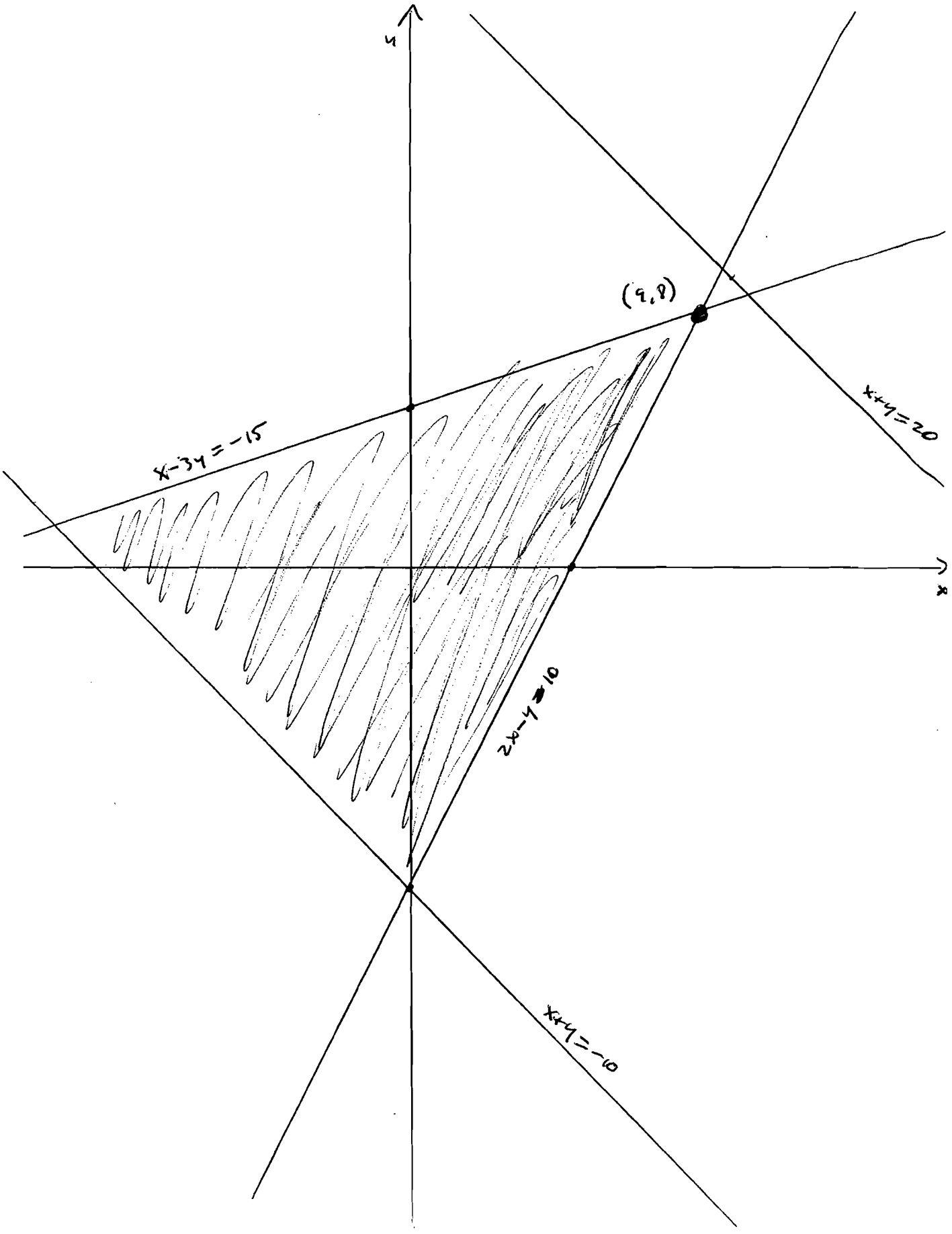

y
x+y=6
(0,6)
(0,2)
(5,1)
y=1
(2,1)
x
x+2y=4

Problem 15

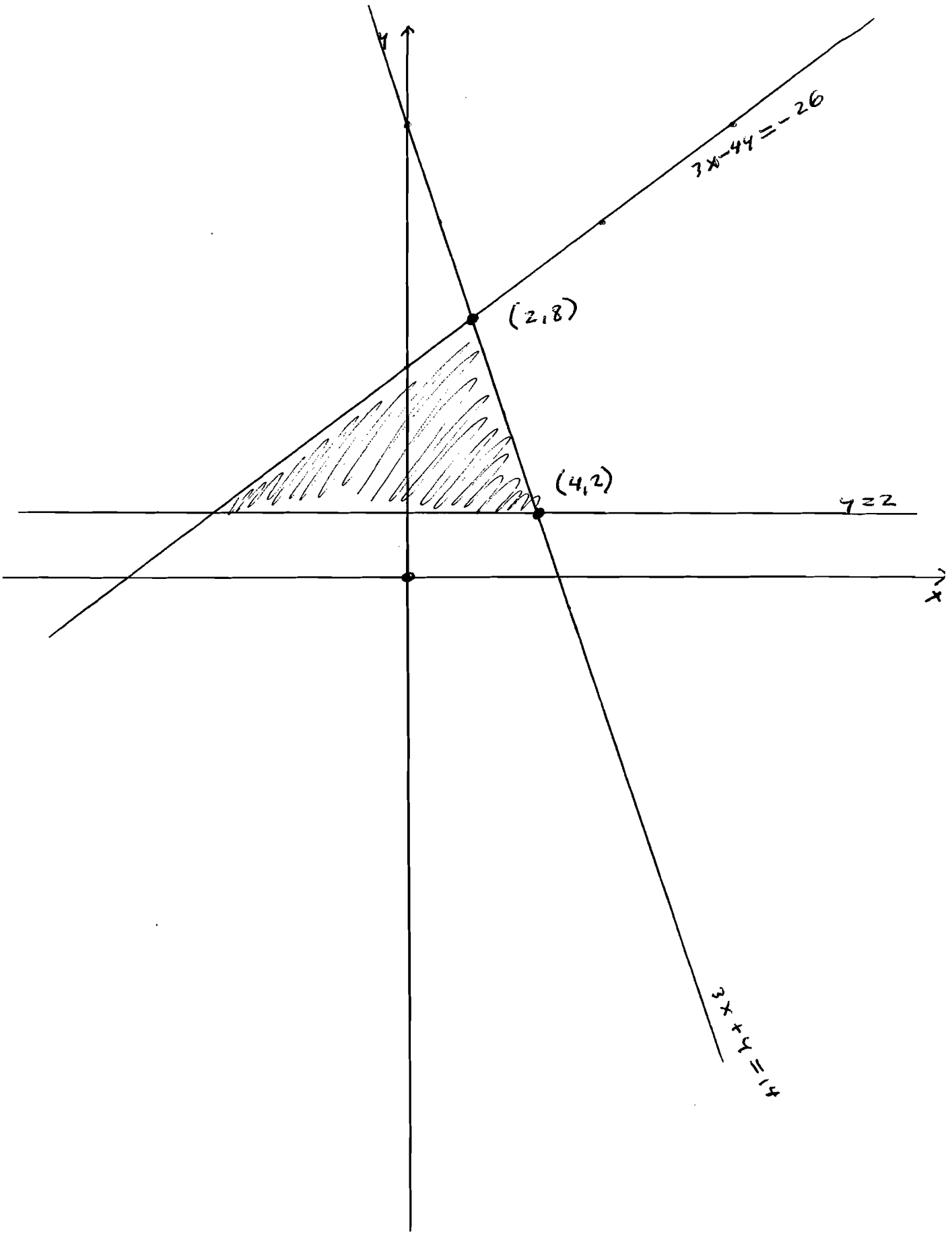


Problem

16

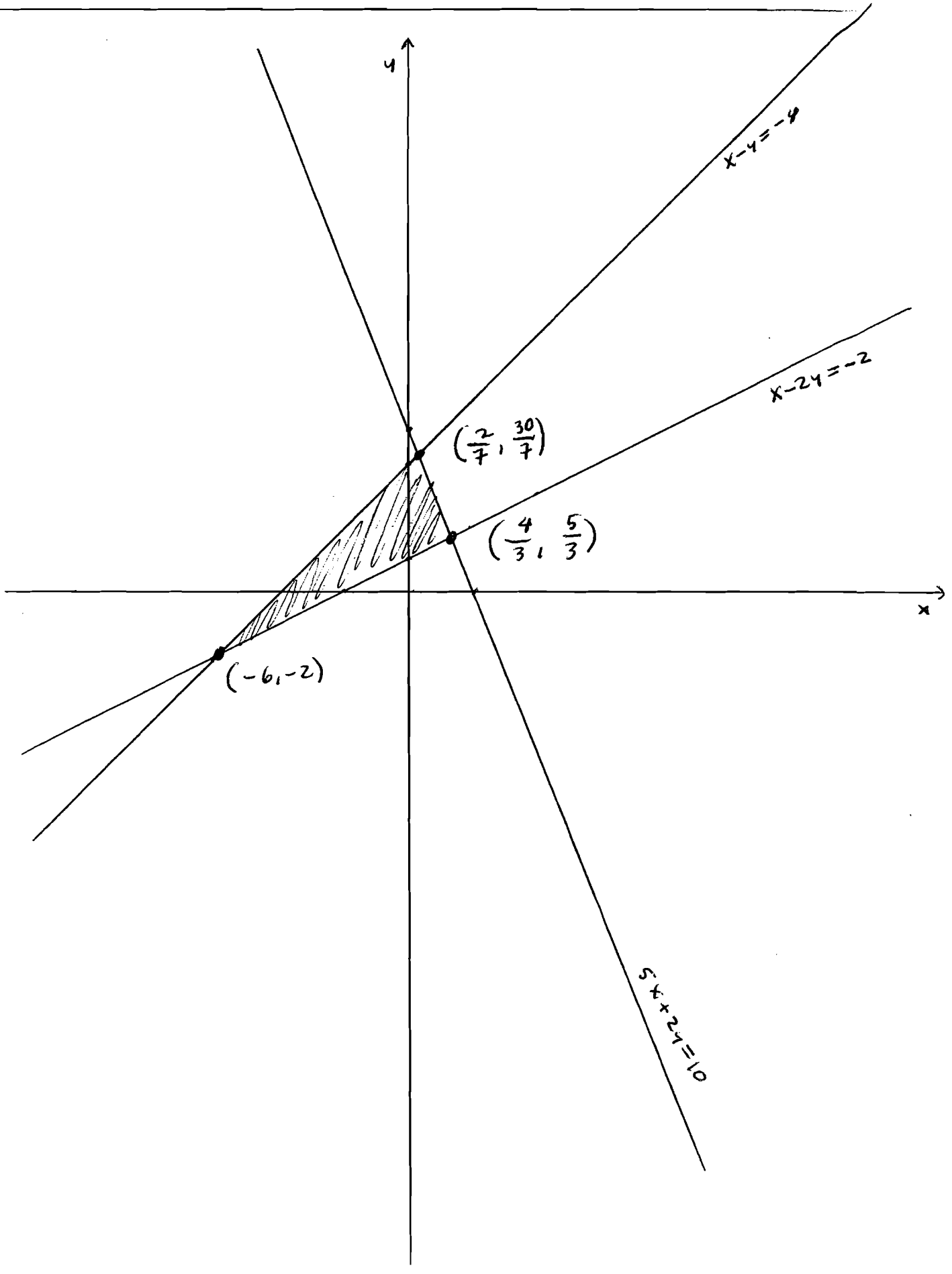


17

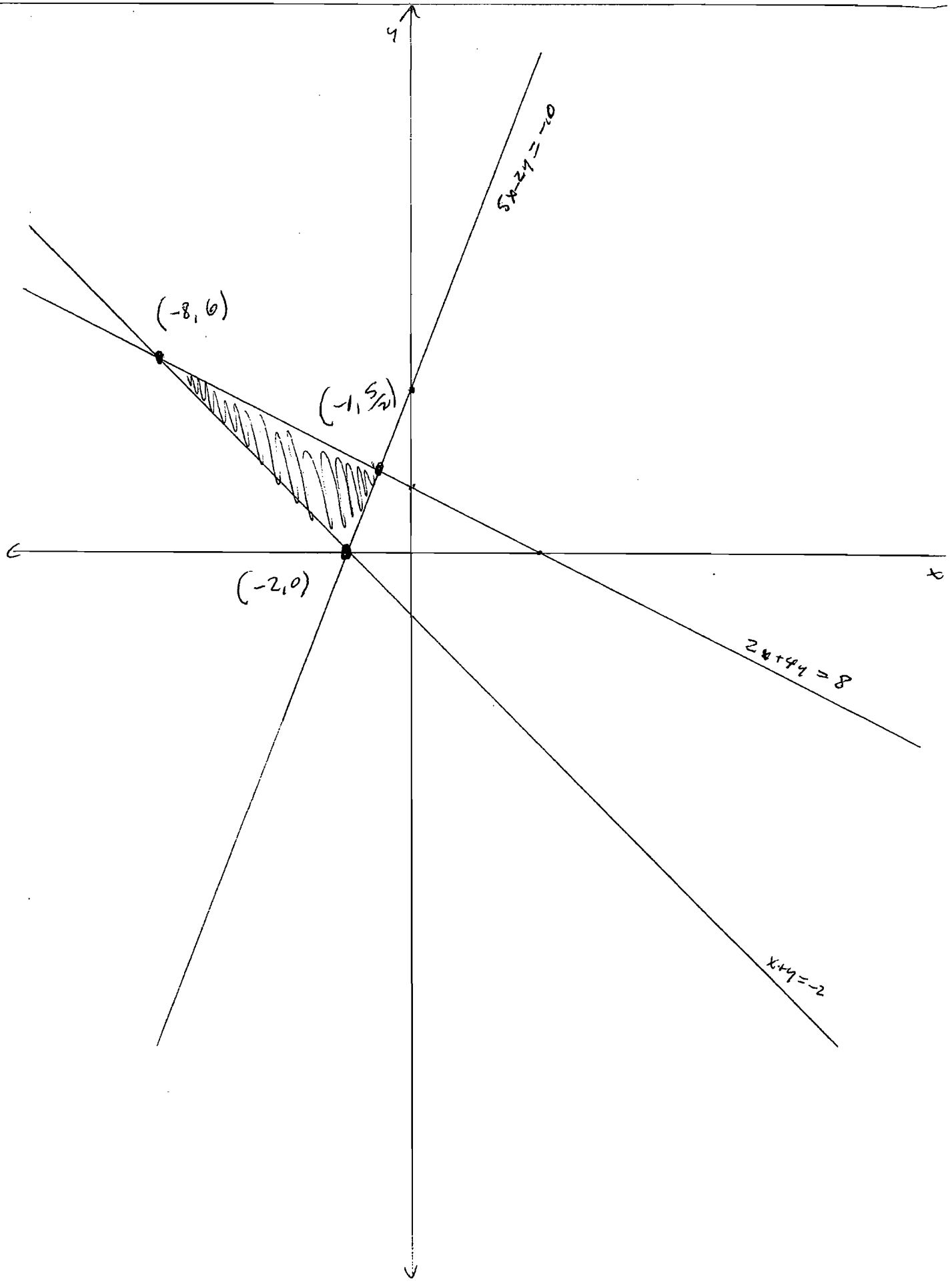


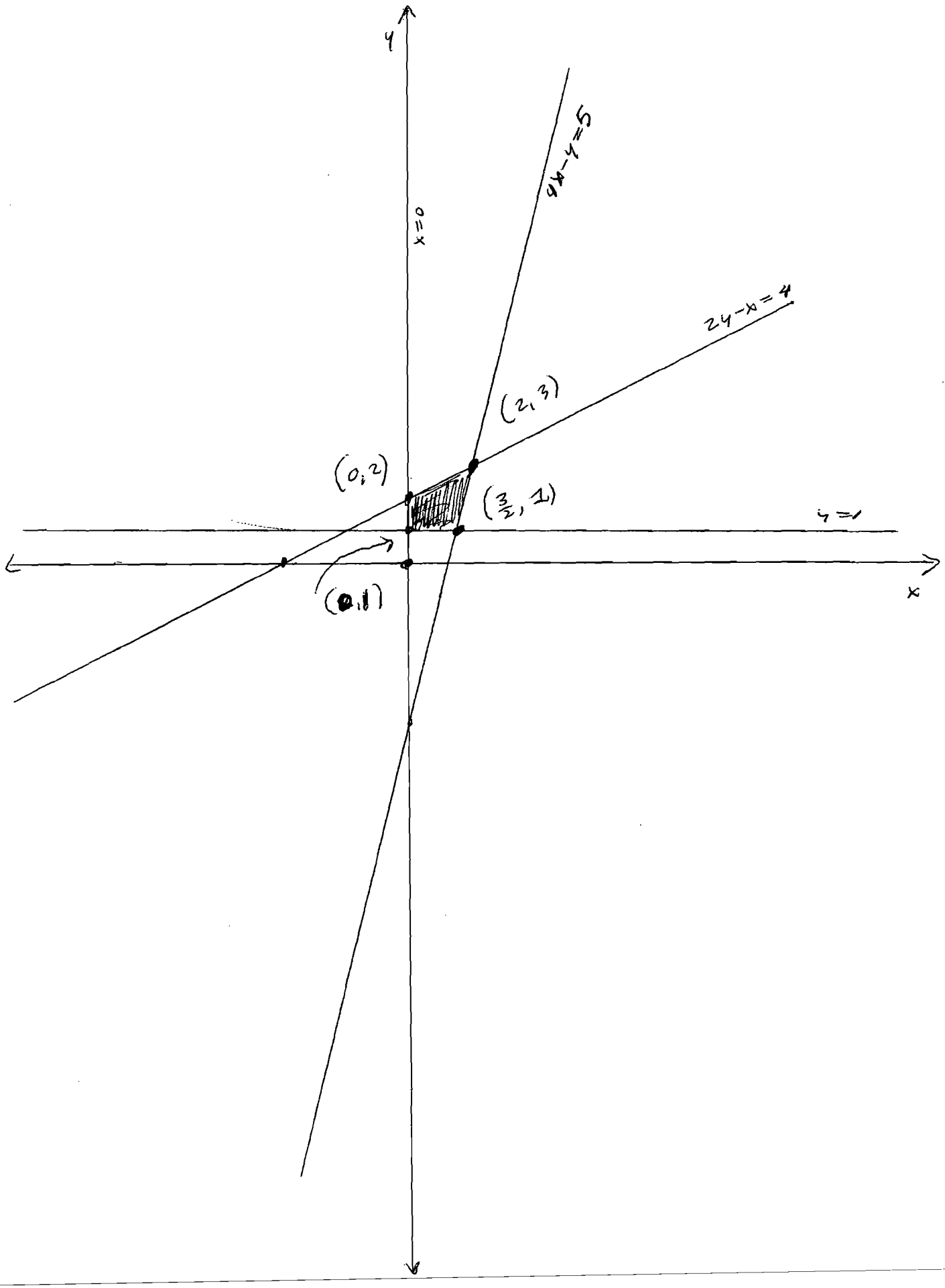
Problem

18

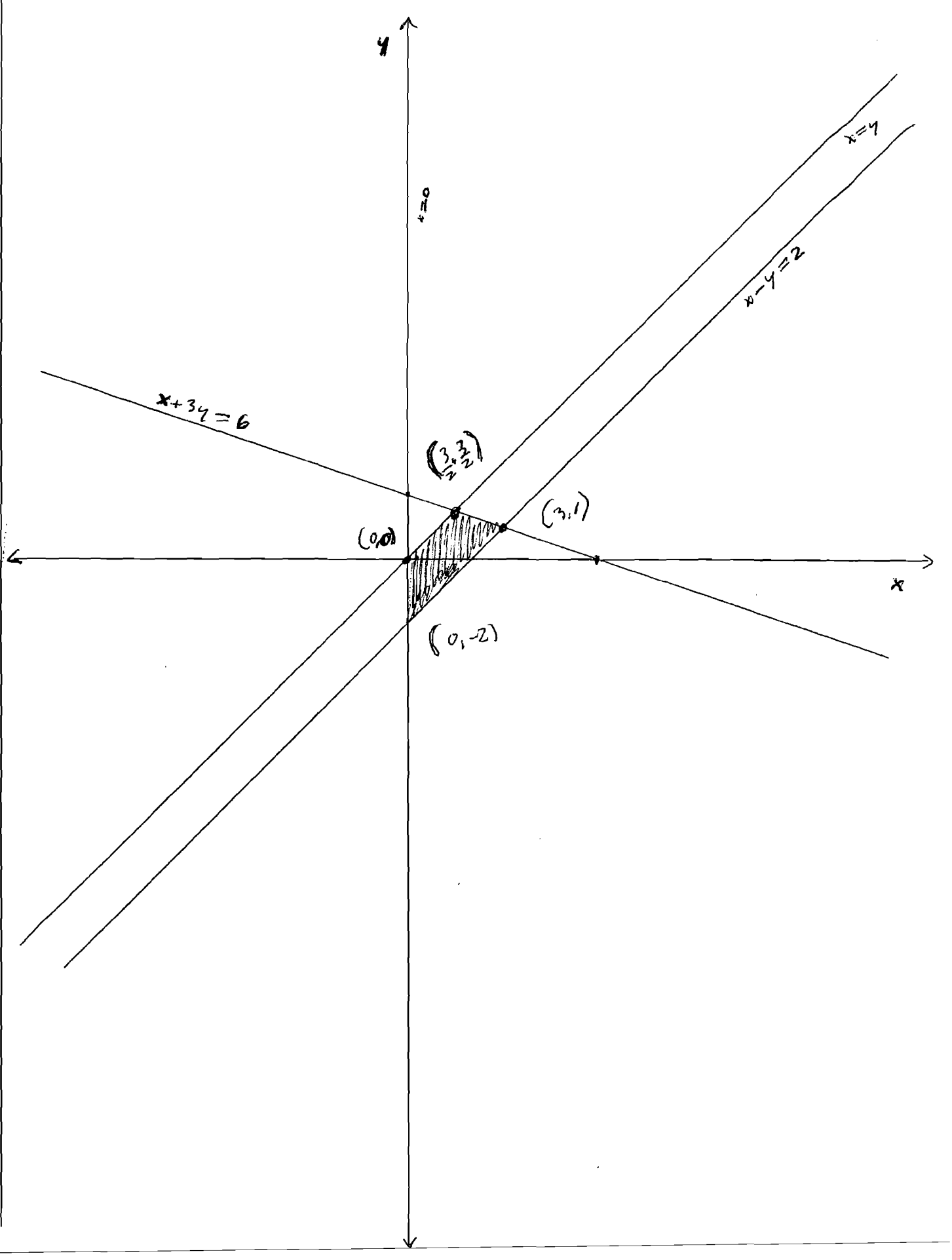


19



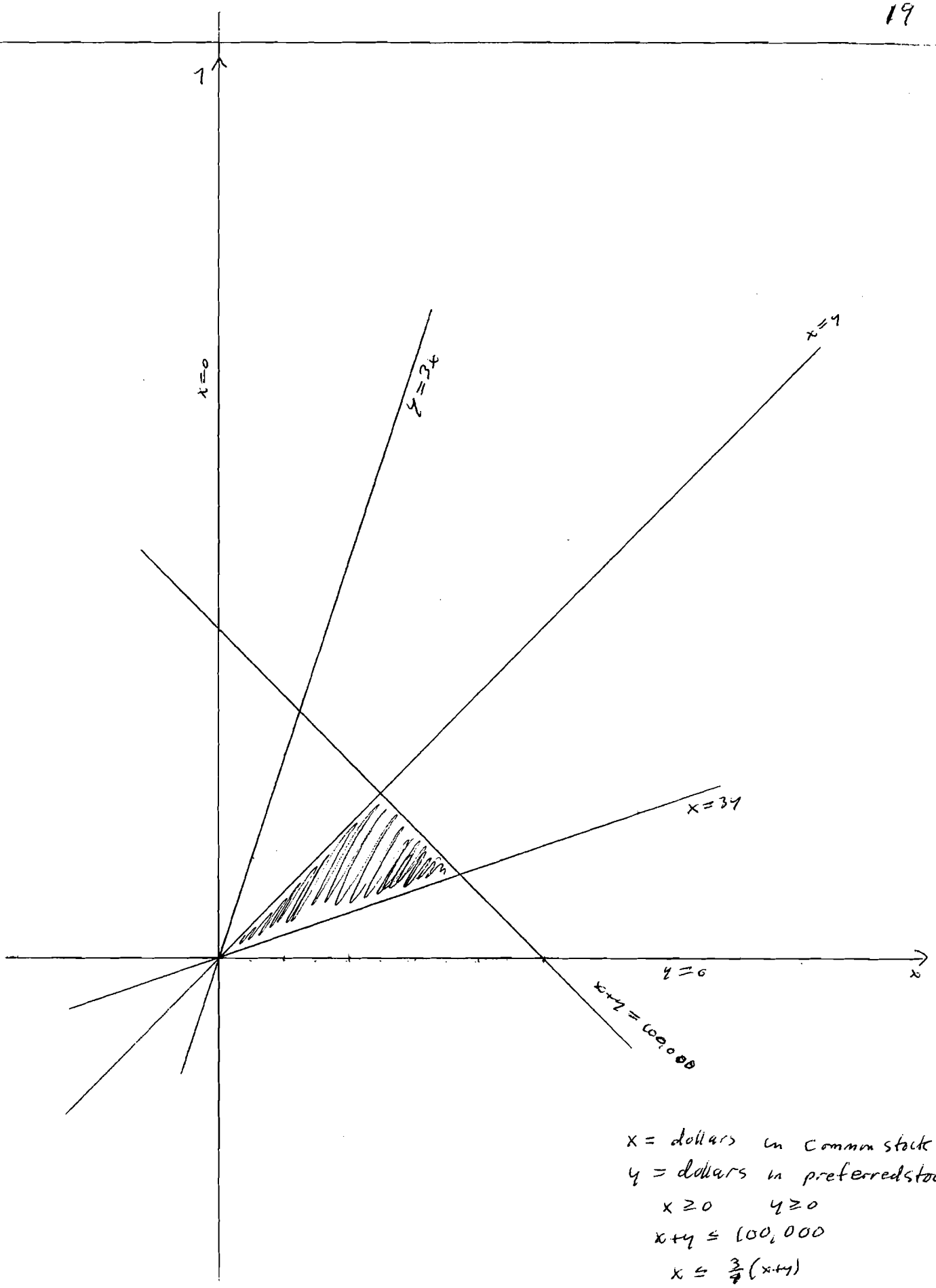

y
x
x=0
4x-y=5
2y-x=4
y=1
(2,3)
(0,2)
(3/2, 1)
(0,1)

21



Problem 22

7.2
19



x = dollars in common stock
y = dollars in preferred stock

$x \geq 0 \qquad y \geq 0$

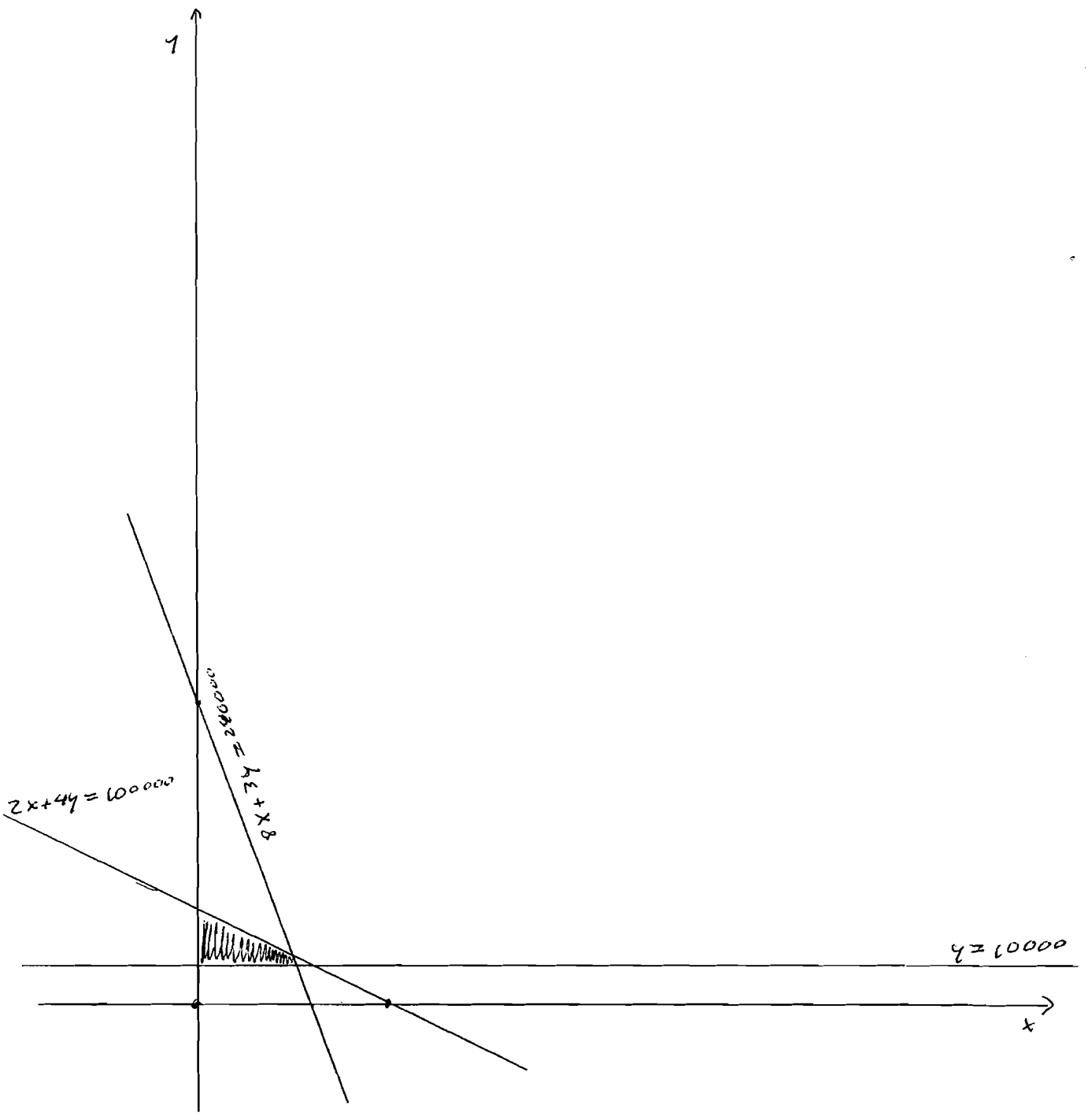
$x + y \leq 100{,}000$

$x \leq \frac{3}{4}(x+y)$

$y \leq \frac{3}{4}(x+y)$

$x \geq y$

23



	Lb Kraft	hrs Labor
st	2	$\frac{8}{100}$
HD	4	$\frac{3}{100}$
Supply	100,000	2400

x = # Standard boxes

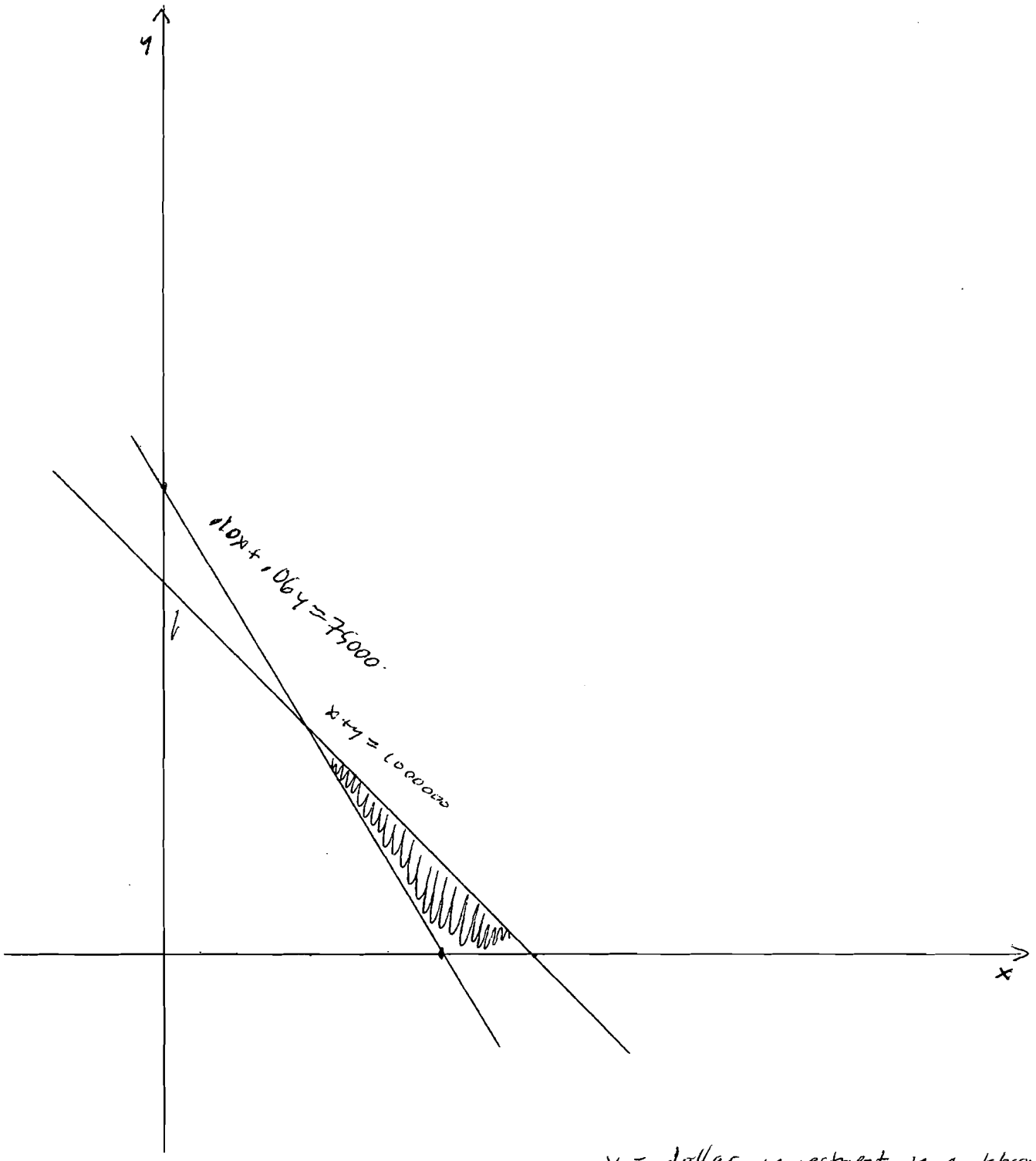
y = # Heavy duty boxes

$x \geq 0 \quad y \geq 0$

$y \geq 10\,000$

$2x + 4y \leq 100{,}000$

$8x + 3y \leq 240{,}000$



x = dollar investment in junk bonds
y = dollar investment in securities

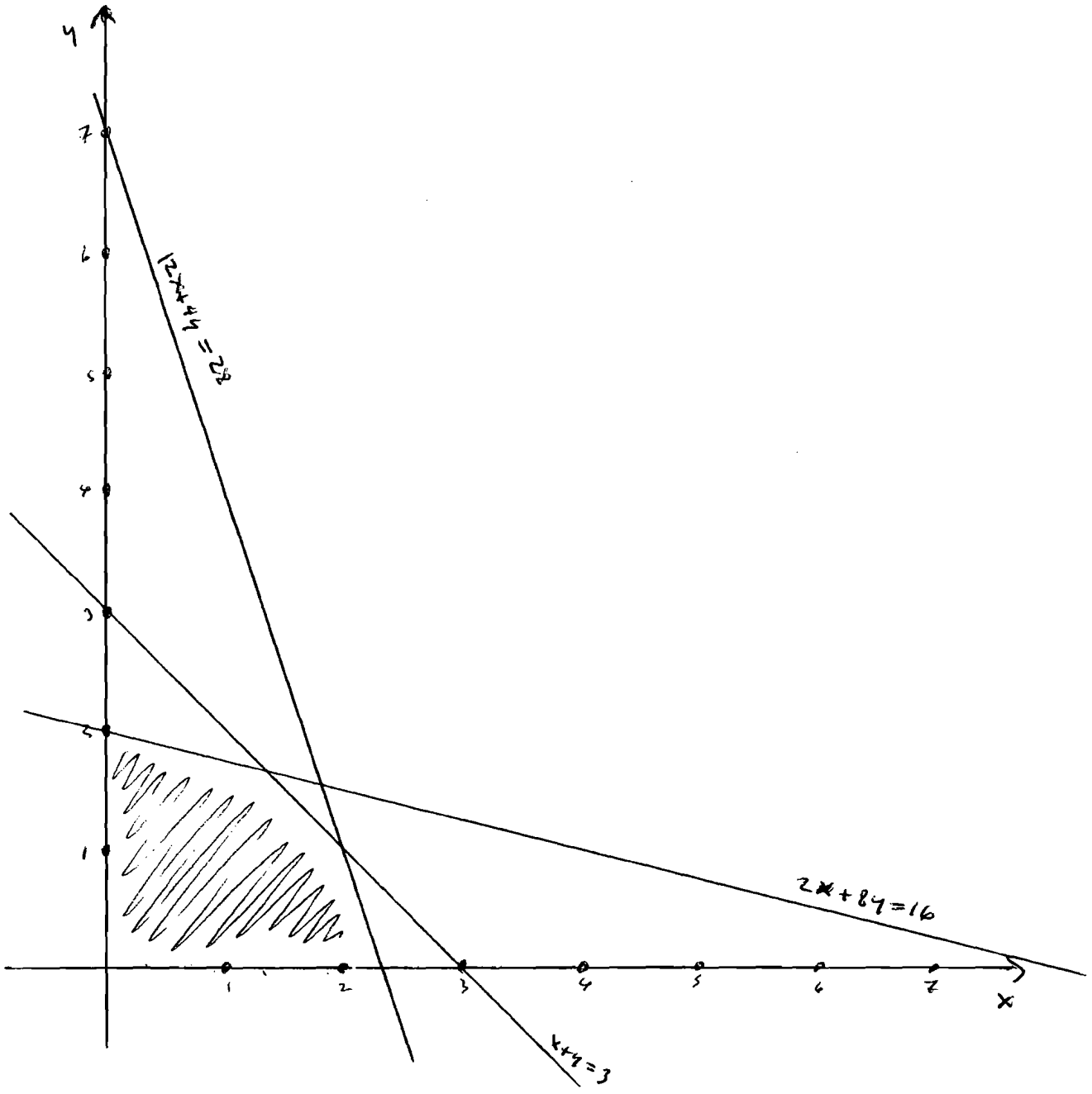
$x \geq 0 \quad y \geq 0$

$x + y \leq 1000000$

$.10x + .06y \geq 75000$

Problem

25



	# days	# hours Lab work
1 acre exp 1	2	12
1 acre exp 2	8	4
Supply	16	28

x = # acres in exp 1
y = # acres in exp 2

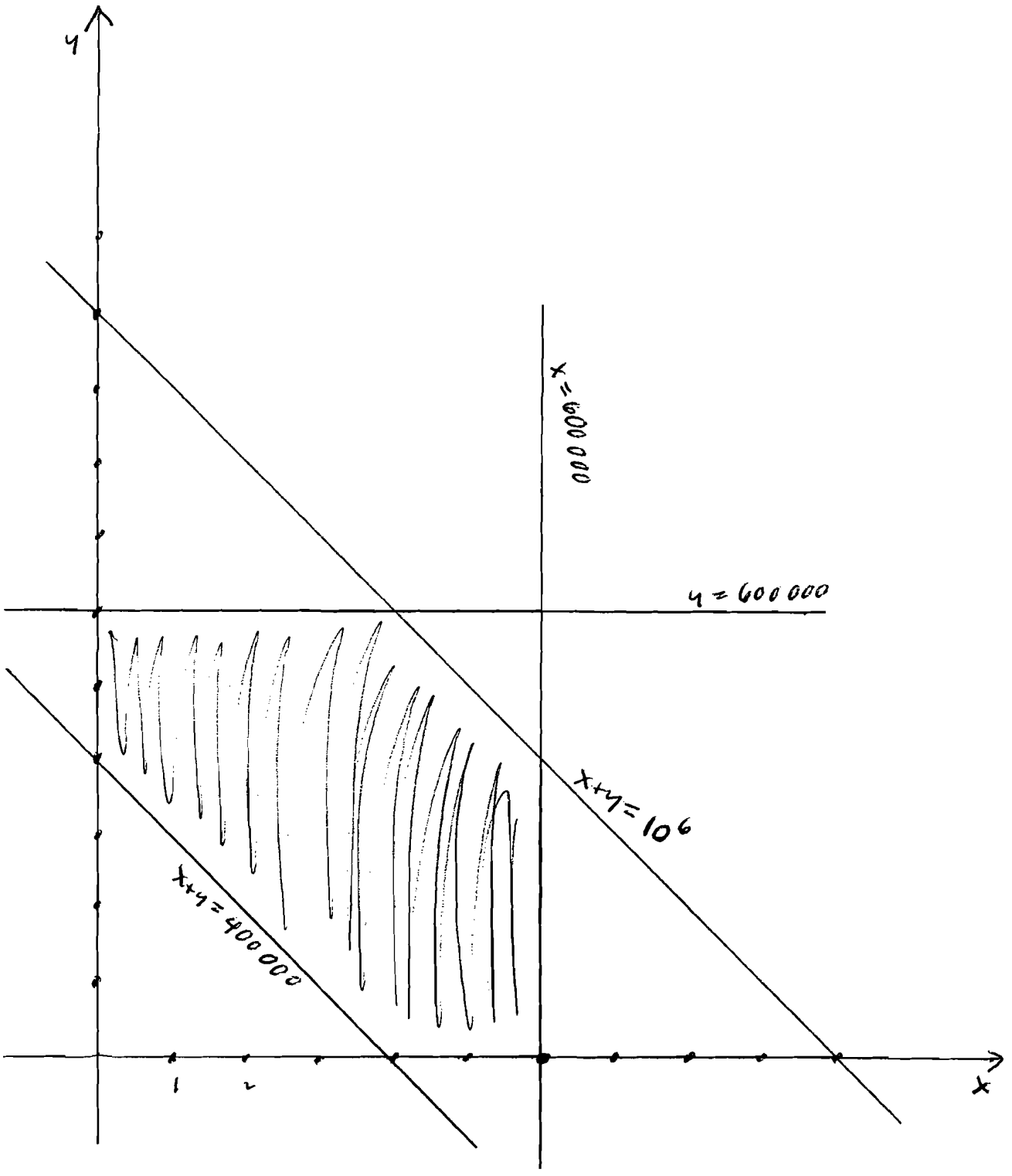
$x \geq 0 \quad y \geq 0$

$x + y \leq 3$

$2x + 8y \leq 16$

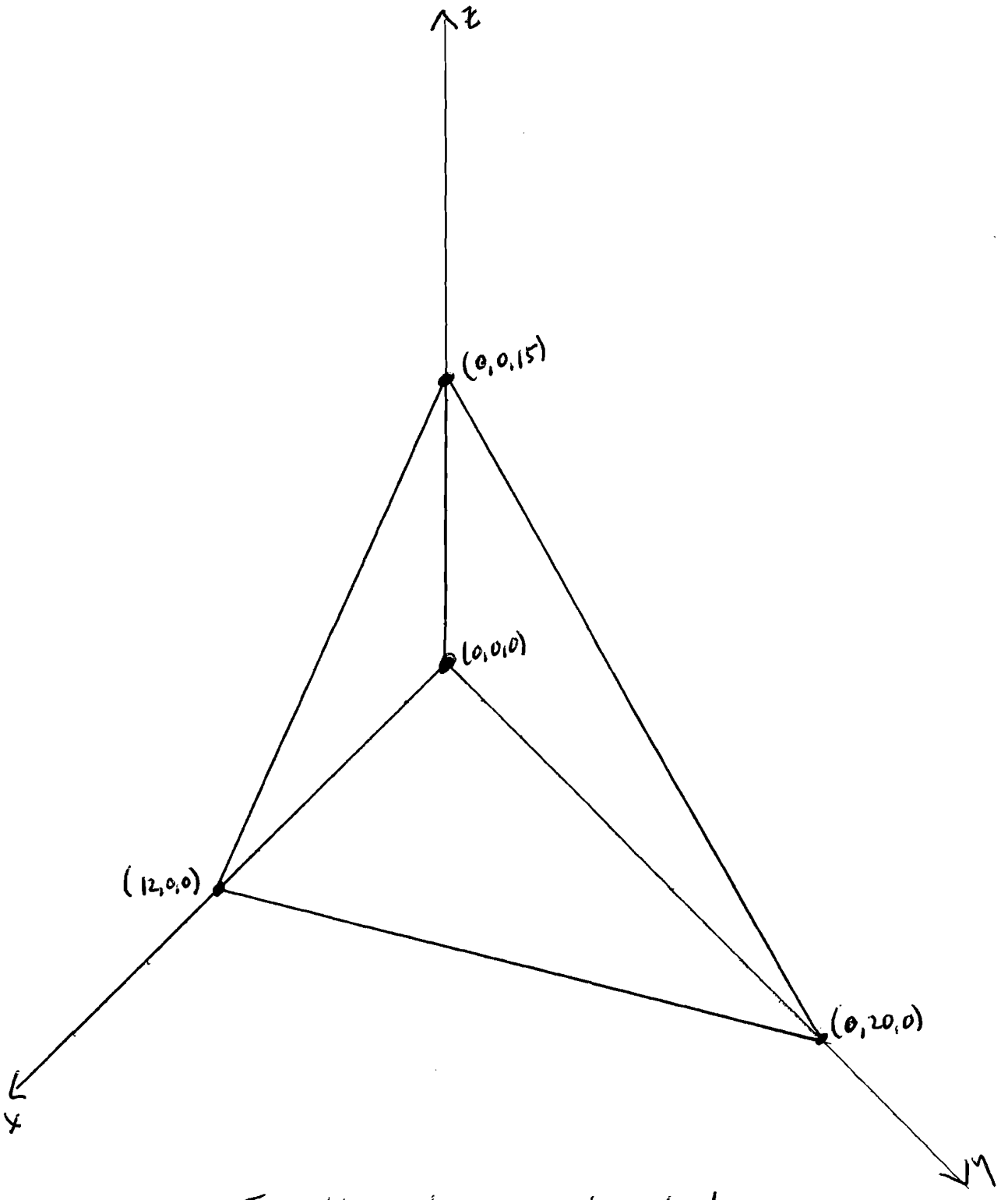
$12x + 4y \leq 28$

26



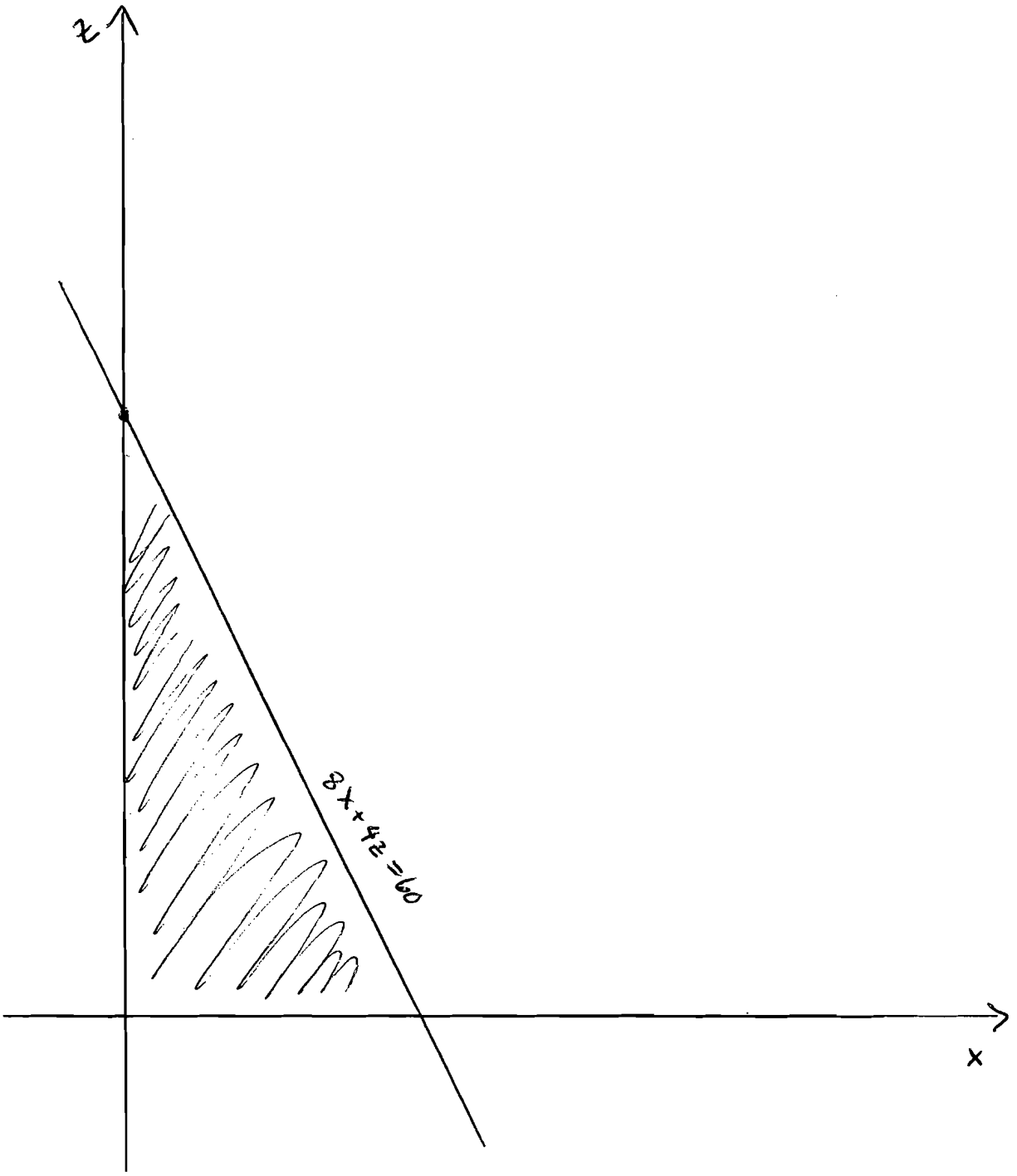
x = # dollars in stocks
y = # dollars in bonds
$10^6 - x - y$ = # dollars in Treas Notes
$x \geq 0 \quad y \geq 0$
$10^6 - x - y \geq 0$
$x \leq 600\,000, \quad y \leq 600\,000$
$10^6 - x - y \leq 600\,000$

(b)
Objective function is
$.06x + .11y + .09(10^6 - x - y)$
$= -.03x + .02y + (.09)10^6$



Feasible set is a tetrahedron

Problem 28



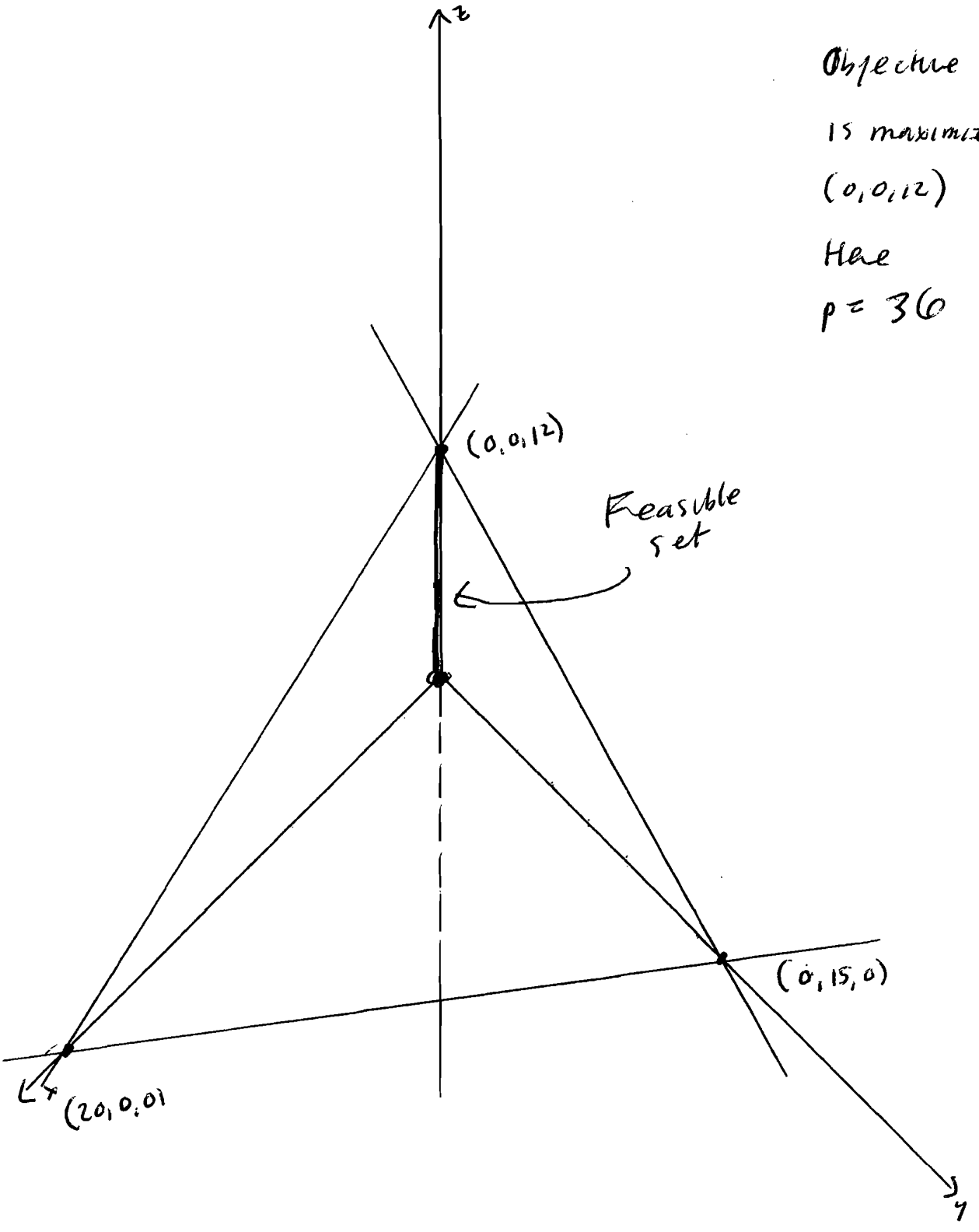
Here $x = y$

$x \geq 0 \quad z \geq 0$

$8x + 4z \leq 60$

29

30



Objective function is maximized at $(0, 0, 12)$

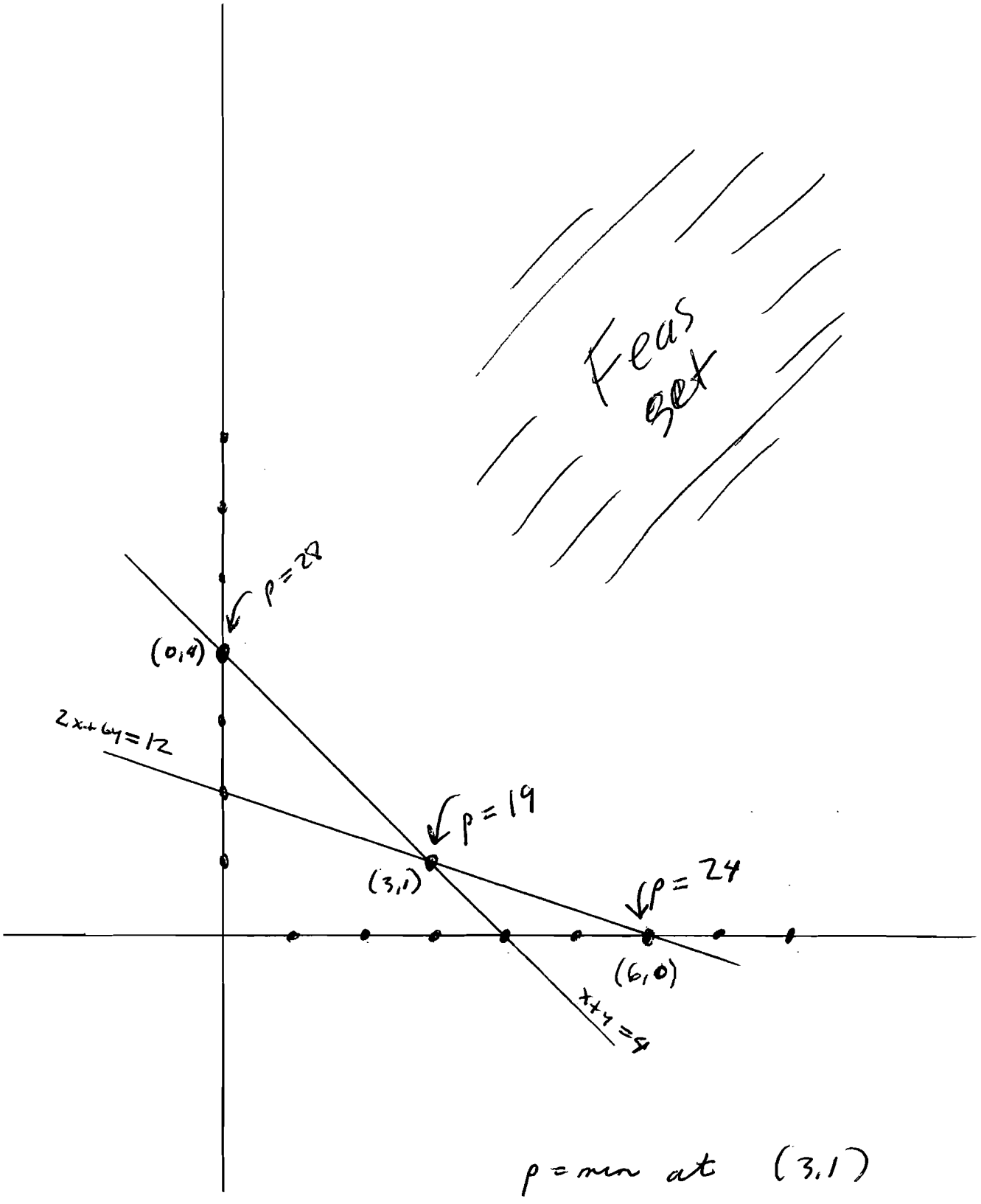
Here $p = 36$

Require $x \geq 0$ $y \geq 0$

since $x \geq 0, y \geq 0$ $2x + 3y \leq 0$

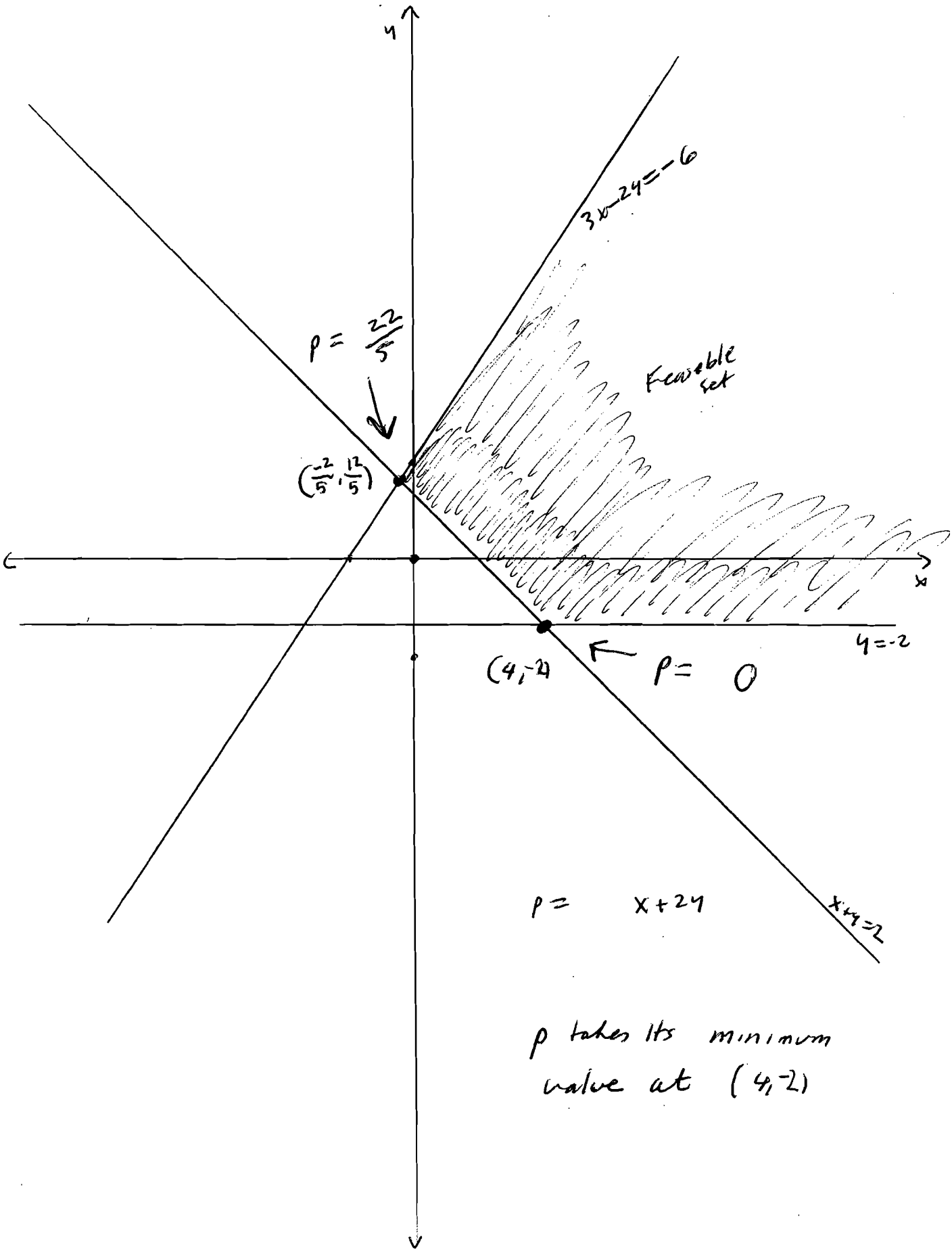
Feasible set is Line segment from $(0, 0, 0)$ to $(0, 0, 12)$

31



p = min at (3,1)

Problem 32



p takes its minimum value at $(4,-2)$