

Key

Geometry: Chapter 13 Review Homework

1. Name all the sets to which each number belongs (solve first and write the letter(s) for the sets):

- a. $\sqrt{13}$ Q'R
- b. -14 ZQR
- c. 0.64 QR
- d. 0 N_0 ZQR
- e. $\frac{51}{3}$ NN₀ZQR
- f. π Q'R

2. $A = \{1, 3, 5, 7, 9, 11\}$ $B = \{2, 4, 6, 8, 10\}$

$C = \{0, 1, 3, 10\}$

- a. $A \cup B = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11\}$
- b. $A \cap C = \{1, 3\}$
- c. $(A \cup C) \cap B = \{10\}$

3. Write an equation of a line with the following conditions:

a. Through $(3, 4)$ and parallel to the x-axis

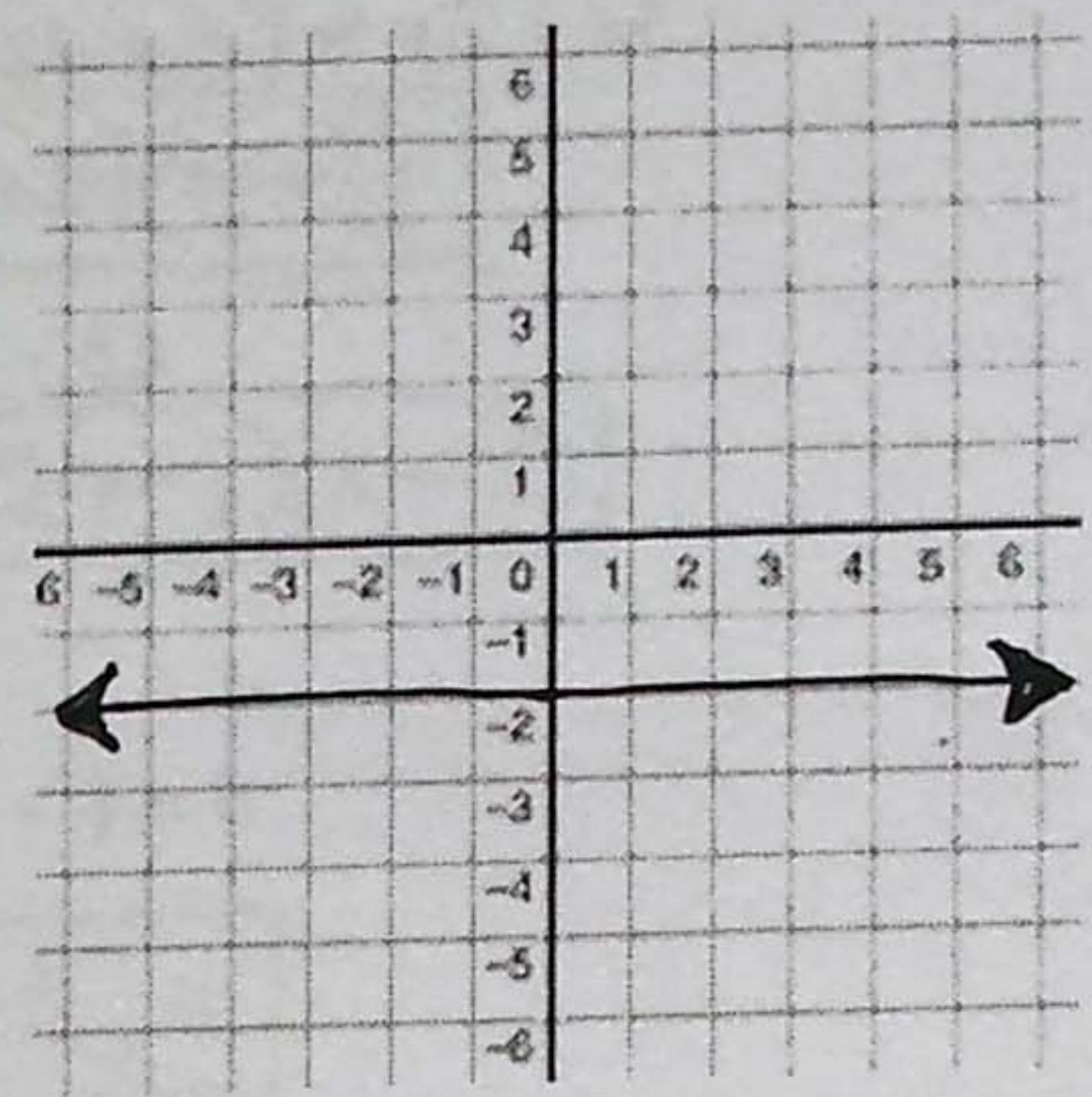
$y = 4$

b. With y-intercept = 3 and x-intercept = 5

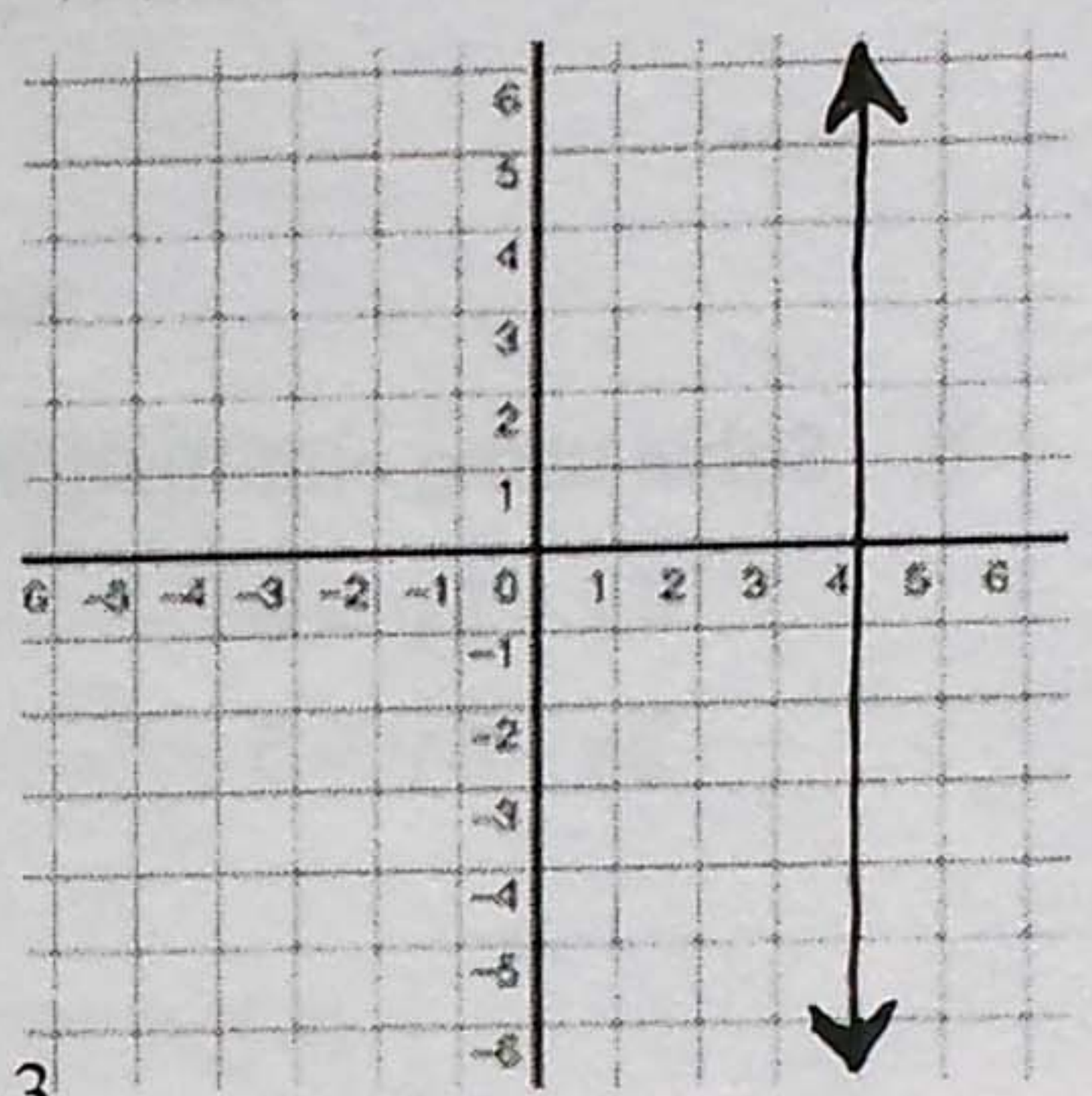
$y = -\frac{3}{5}x + 3$

4. Graph

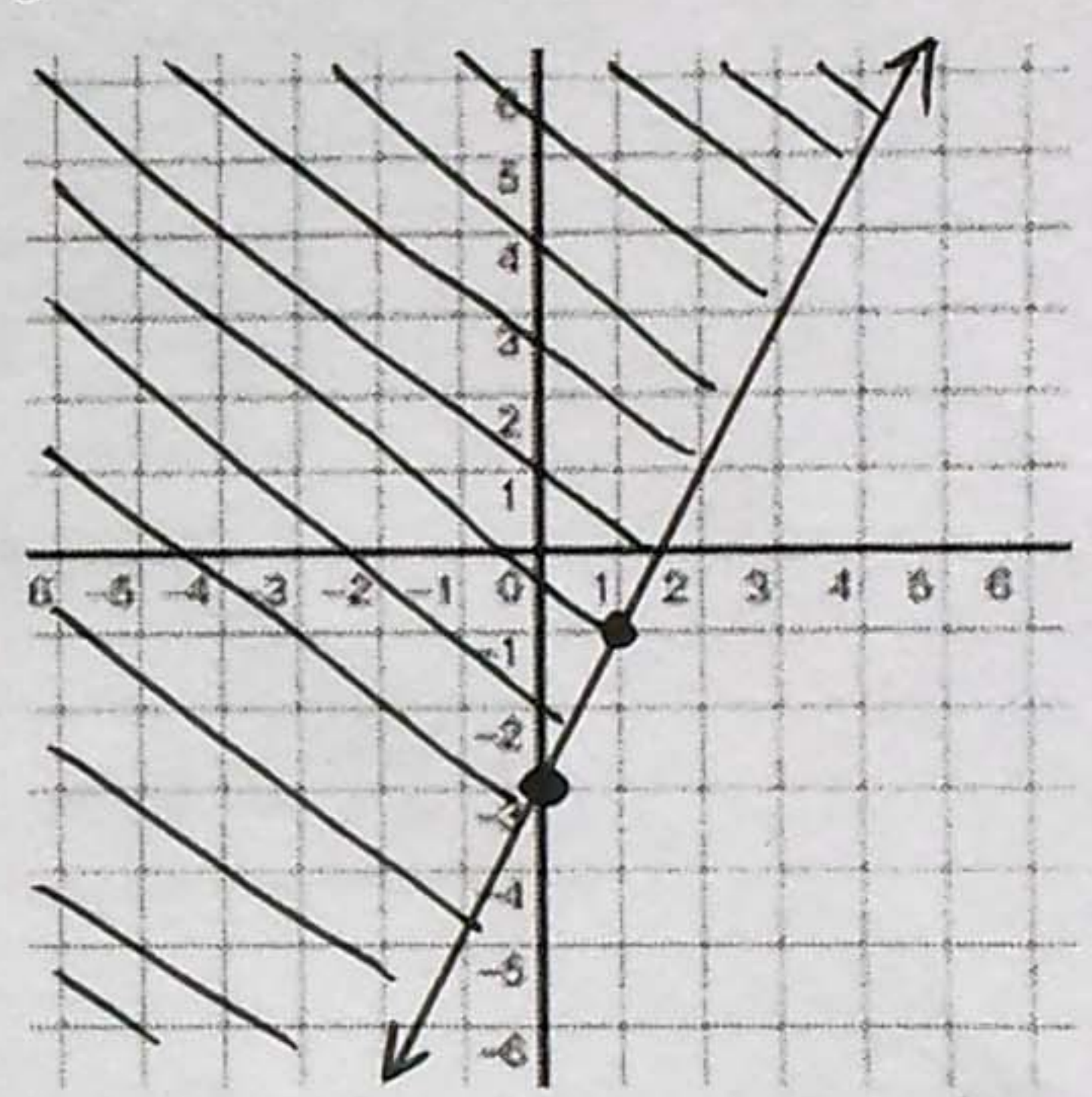
a. $y = -2$



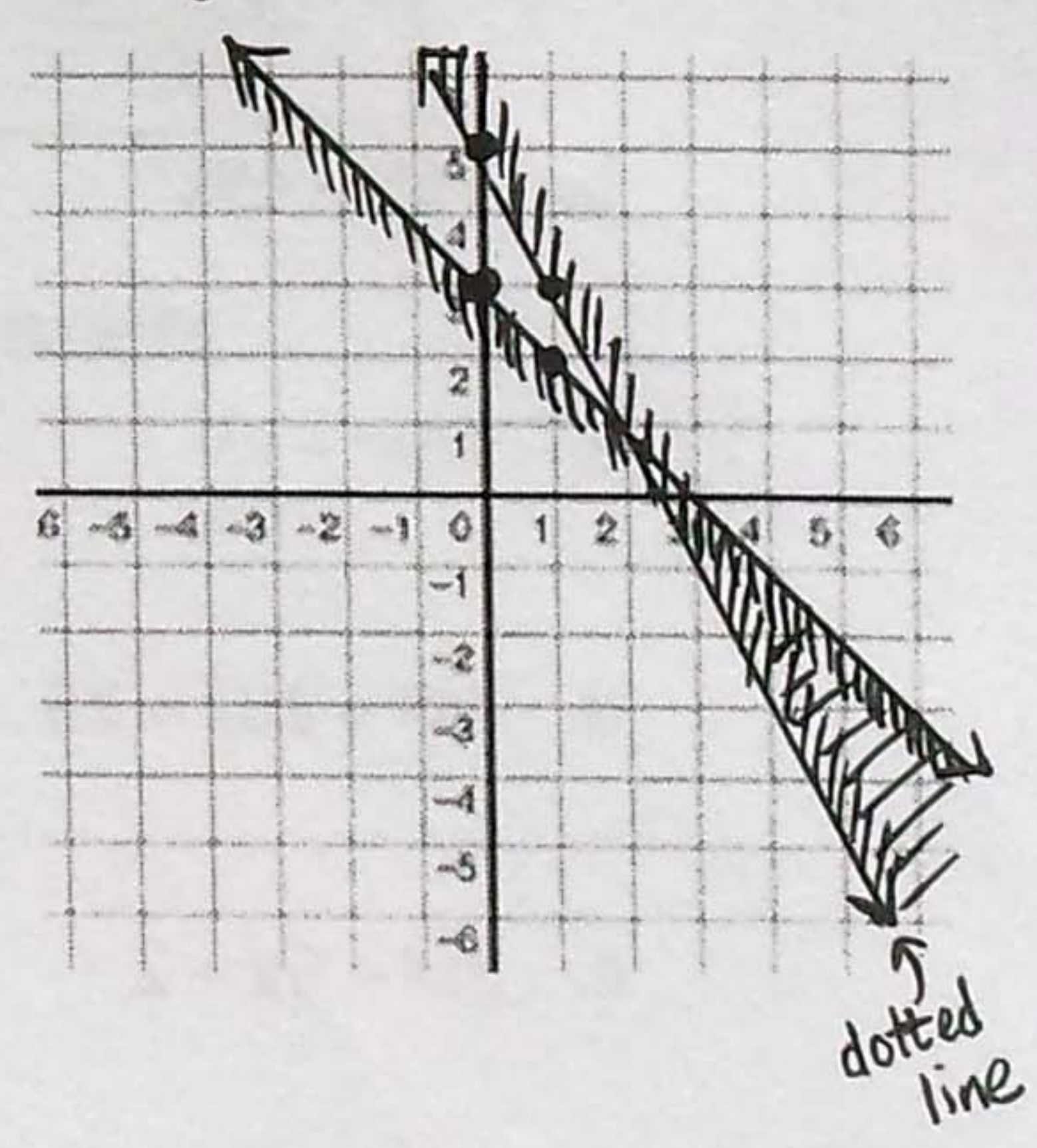
b. $x = 4$



c. $y \geq 2x - 3$



d. $2x + y > 5 \rightarrow y > -2x + 5$
 $x + y \leq 3 \rightarrow y \leq -x + 3$



5. Solve using substitution:

$$2x + 3y = -6$$

$$3x + 2y = 1$$

$$(3, -4)$$

6. Solve using elimination:

$$4x + 3y = 0$$

$$2x - 6y = 5$$

$$\left(-2, -\frac{2}{3}\right)$$

7. Factor Completely:

a. $cx + cy + bx + by$

$$(c+b)(x+y)$$

b. $169 - 49x^2$

$$(13+7x)(13-7x)$$

c. $16x^4 - y^4$

$$(4x^2 + y^2)(2x + y)(2x - y)$$

d. $4x^2 + 20x + 25$

$$(2x+5)(2x+5)$$

e. $3x^2 + 5x + 2$

$$(3x+2)(x+1)$$

f. $4x^2 - 8xy - 12y^2$

$$4(x-3y)(x+y)$$

g. $3x^2 - 10x + 8$

$$(3x-2)(x-2)$$

h. $a^2b + a^2 + 2b + 2$

$$(a^2+2)(b+1)$$

i. $6x^2 + 33x - 63$

$$3(2x-3)(x+7)$$

8. Solve:

a. $4x^2 - 17x + 4 = 0$

$$x = \frac{1}{4}, 4$$

b. $x^2 + 3x = 40$

$$x = -8, 5$$

c. $x^3 = 81x$

$$x = 0, -9, 9$$

d. $4x^2 = 25$

$$x = \pm \frac{5}{2}$$

e. $x^2 - 8x + 14 = 0$

$$x = 4 \pm \sqrt{2}$$

f. $x^2 - 5x - 10 = 0$

$$x = \frac{5 \pm \sqrt{65}}{2}$$

~~1/2(5 \pm \sqrt{65})~~

Simplify completely: Assume all variables are non-negative.

a. $\sqrt{\frac{5}{12}}$ $\boxed{\frac{\sqrt{15}}{6}}$

b. $5\sqrt{32}$ $\boxed{20\sqrt{2}}$

c. $\sqrt{\frac{1}{8}}$ $\boxed{\frac{\sqrt{2}}{4}}$

d. $6\sqrt{5} + 8\sqrt{20} - \sqrt{80}$
 $\boxed{18\sqrt{5}}$

e. $6\sqrt{2} + 7\sqrt{3} + 5\sqrt{2}$
 $\boxed{11\sqrt{2} + 7\sqrt{3}}$

f. $\sqrt{98} - \sqrt{50}$
 $\boxed{2\sqrt{2}}$

g. $\sqrt{18x^3y^5}$
 $\boxed{3xy^2\sqrt{2xy}}$

h. $\sqrt{\frac{x^2y}{5}}$ $\boxed{\frac{x\sqrt{5y}}{5}}$

10. Solve for x:

a. $|2x+1| \geq 2$
 $\boxed{x \leq -\frac{2}{3} \quad x \geq \frac{1}{2}}$

b. $|x-3| > 1$
 $\boxed{x > 4 \quad x < 2}$

c. $|4x-2| \leq 4$
 $\boxed{x \leq \frac{3}{2} \quad x \geq -\frac{1}{2}}$

d. $|2x-3| = 20$
 $\boxed{x = -\frac{17}{2} \text{ AND } \frac{23}{2}}$