

Solve the following systems of equations algebraically using substitution or elimination.

1. $(2x - 3y = 11) - 2$
 $4x + 5y = 44$

$-4x + 6y = -22$

 $11y = 22$
 $y = 2$

$2x - 3y = 11$
 $2x - 3(2) = 11$
 $2x - 6 = 11$
 $2x = 17 \Rightarrow x = \frac{17}{2} = 8.5$

$(8.5, 2)$

2. $y = 5x - 7$
 $6x - 3y = -24$

$6x - 3(5x - 7) = -24$
 $6x - 15x + 21 = -24$
 $-9x + 21 = -24$
 $-9x = -45$
 $x = 5$

$y = 5(5) - 7$
 $y = 25 - 7$
 $y = 18$

$(5, 18)$

3. $(y + 5x = 14) - 2$
 $2y - 3x = -11$

$-2y - 10x = 28$
 $2y - 3x = -11$

 $-13x = -39$

$(3, -1)$

$x = 3$
 $y + 5(3) = 14$
 $y + 15 = 14$
 $y = -1$

4. $4y + 3x = 38$
 $x = 4y + 2$

$4y + 3(4y + 2) = 38$
 $4y + 12y + 6 = 38$
 $16y + 6 = 38$
 $16y = 32$
 $y = 2$

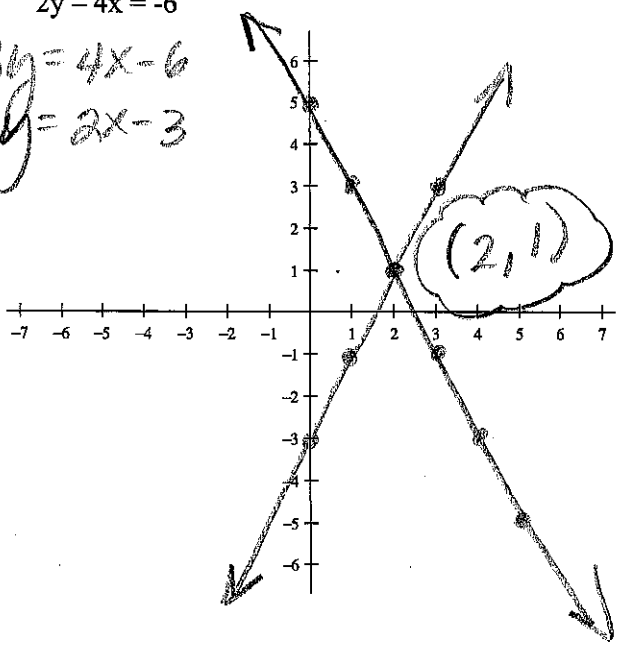
$x = 4y + 2$
 $x = 4(2) + 2$
 $x = 8 + 2$
 $x = 10$

$(10, 2)$

Solve the following systems of equations by graphing.

5. $y + 2x = 5 \Rightarrow y = -2x + 5$
 $2y - 4x = -6$

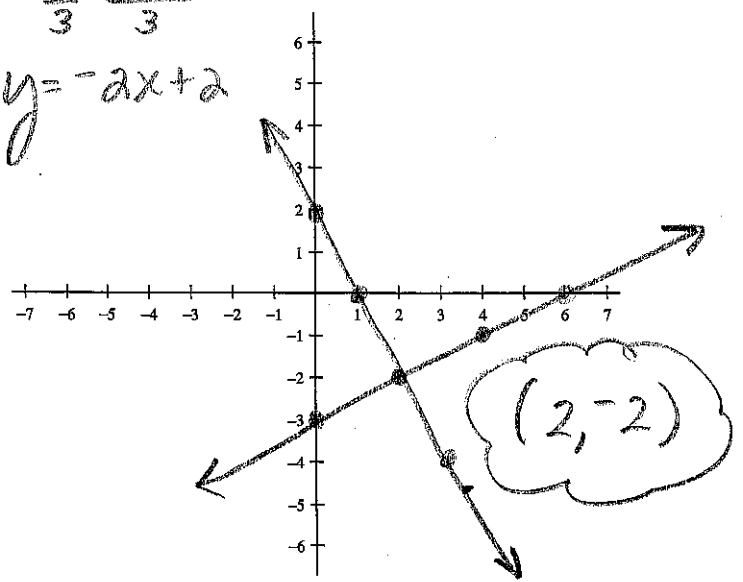
$2y = 4x - 6$
 $y = 2x - 3$



6. $y = \frac{1}{2}x - 3$

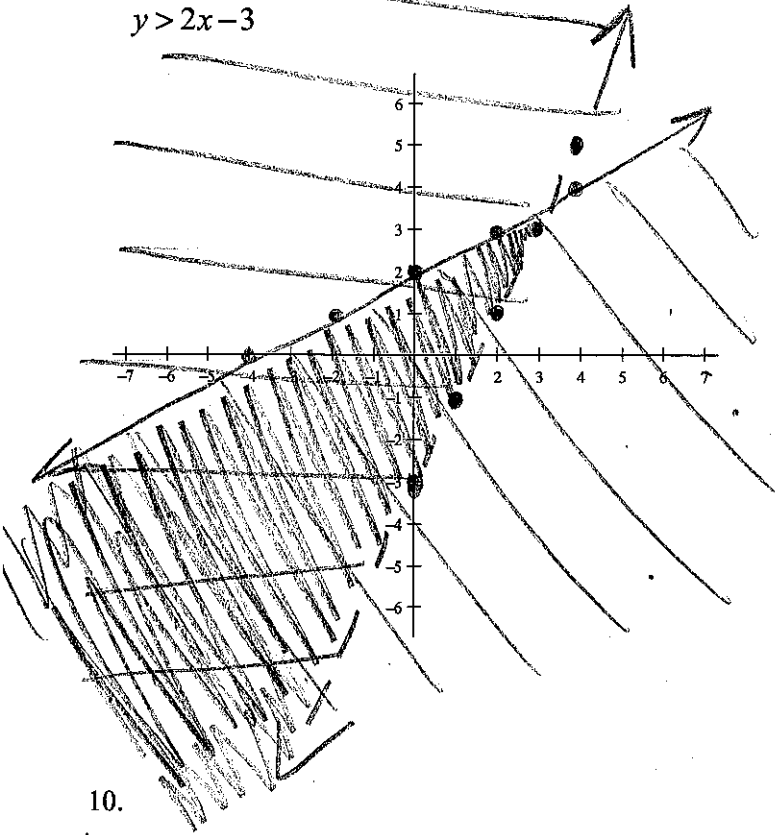
$\frac{3y = -6x + 6}{3} \Rightarrow y = -2x + 2$

$y = -2x + 2$

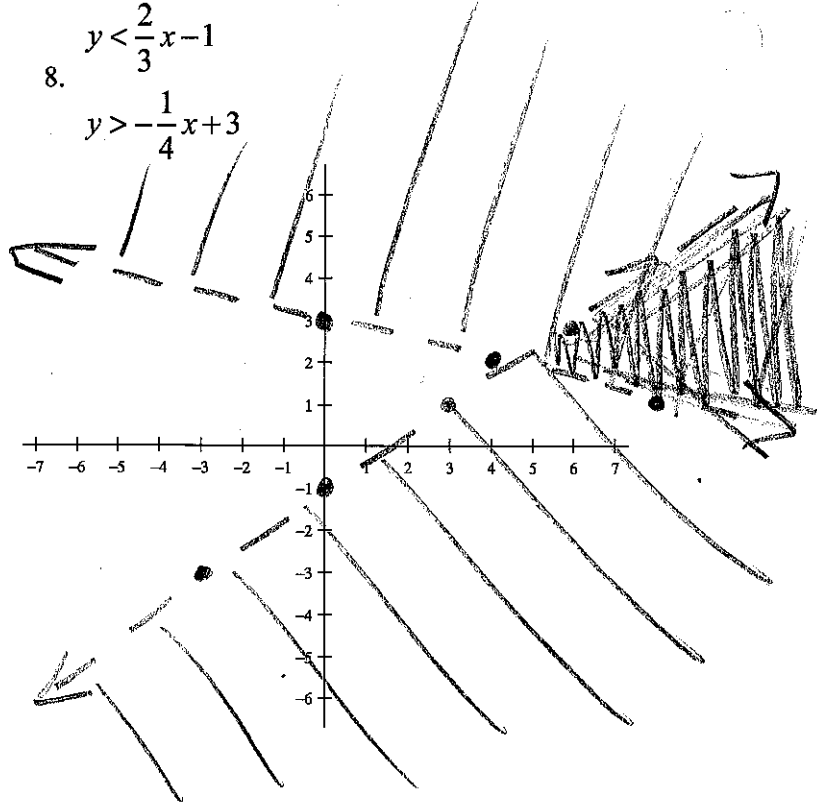


Graph the solution to the following systems of inequalities.

7. $y \leq \frac{1}{2}x + 2$
 $y > 2x - 3$



8. $y < \frac{2}{3}x - 1$
 $y > -\frac{1}{4}x + 3$



10.

$2y < 3x - 8 \implies y < \frac{3}{2}x - 4$
 $2x + y > 3 \implies y > -2x + 3$
 $x \leq 5$

