Key

Math 1

Name _____

Date _____

Solving Systems using Graphing and Substitution

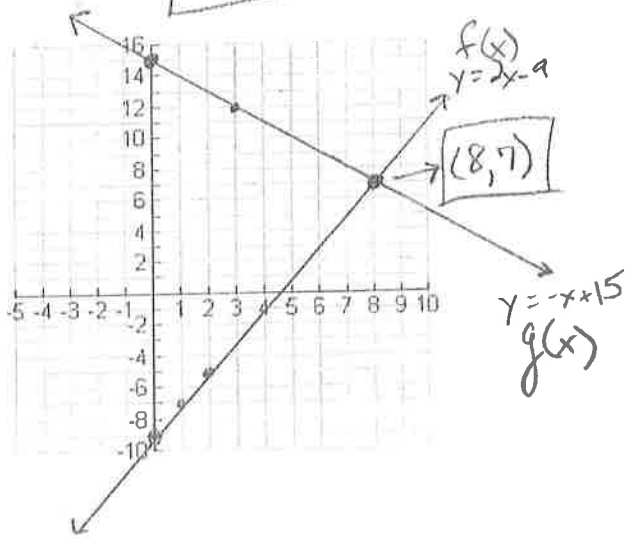
3-2

Graph the following systems of equations and estimate the point of intersection.

1. $\begin{cases} y = 2x - 9 \\ y = -x + 15 \end{cases}$ (8, 7)

Same as f(x)

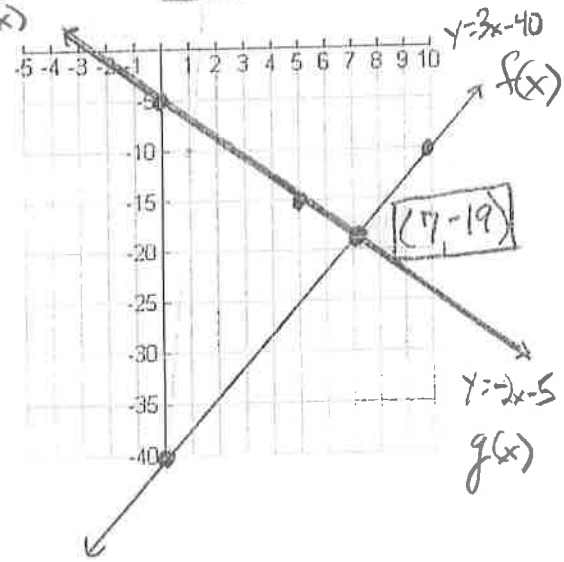
Same as g(x)



2. $\begin{cases} y = 3x - 40 \\ y = -2x - 5 \end{cases}$ (7, -19)

f(x)

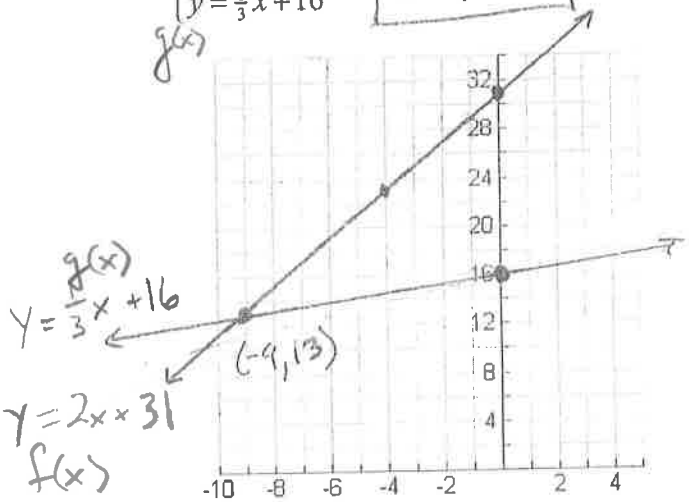
g(x)



3. $\begin{cases} y = 2x + 31 \\ y = \frac{1}{3}x + 16 \end{cases}$ (-9, 13)

f(x)

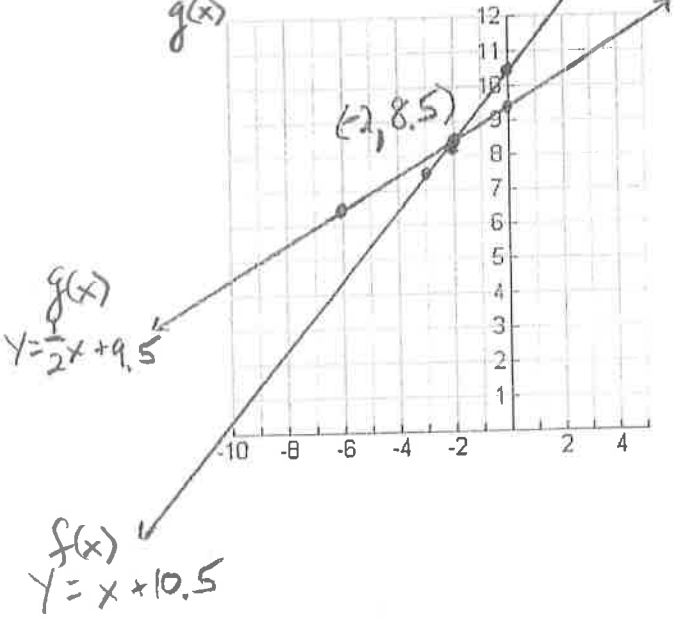
g(x)



4. $\begin{cases} y = x + 10.5 \\ y = \frac{1}{2}x + 9.5 \end{cases}$ (-2, 8.5)

f(x)

g(x)



Solve the following systems of equations using substitution.

5. $\begin{cases} y = 2x - 9 \\ y = -x + 15 \end{cases}$

$2x - 9 = -x + 15$

$3x = 24$

$x = 8$

$y = 2(8) - 9$

$y = 7$

$(8, 7)$

6. $\begin{cases} y = 3x + 2 \\ y = 6x - 10 \end{cases}$

$3x + 2 = 6x - 10$

$12 = 3x$

$x = 4$

$y = 3(4) + 2$

$y = 14$

$(4, 14)$

7. $\begin{cases} y = 4x + 6 \\ 3x + 2y = -21 \end{cases}$

$3x + 2(4x + 6) = -21$

$3x + 8x + 12 = -21$

$11x = -33$

$x = -3$

$y = 4(-3) + 6$

$y = -6$

$(-3, -6)$

8. $\begin{cases} y = x + 16 \\ 3x + 2y = -23 \end{cases}$

$3x + 2(x + 16) = -23$

$3x + 2x + 32 = -23$

$5x = -55$

$x = -11$

$y = -11 + 16$

$y = 5$

$(-11, 5)$

9. $\begin{cases} x = \frac{1}{2}y + 1 \\ 7x - 3y = 8 \end{cases}$

$7(\frac{1}{2}y + 1) - 3y = 8$

$3.5y + 7 - 3y = 8$

$0.5y = 1$

$y = 2$

$x = \frac{1}{2}(2) + 1$

$x = 0$

$(0, 2)$

10. $\begin{cases} x = y - 7.5 \\ 8y - x = 39 \end{cases}$

$8y - (y - 7.5) = 39$

$8y - y + 7.5 = 39$

$7y = 31.5$

$y = 4.5$

$x = 4.5 - 7.5$

$x = -3$

$(-3, 4.5)$

11. $\begin{cases} 2x = 6y + 2 \\ 3x - 8y = 2 \end{cases} \rightarrow x = 3y + 1$

$3(3y + 1) - 8y = 2$

$9y + 3 - 8y = 2$

$y = -1$

$x = 3(-1) + 1$

$x = -3 + 1$

$x = -2$

$(-2, -1)$

12. $\begin{cases} -x = 9 - y \\ 3x + y = -1 \end{cases} \rightarrow x = 9 + y$

$3(9 + y) + y = -1$

$27 + 3y + y = -1$

$4y = -28$

$y = -7$

$x = 9 + -7$

$x = 2$

$(2, -7)$