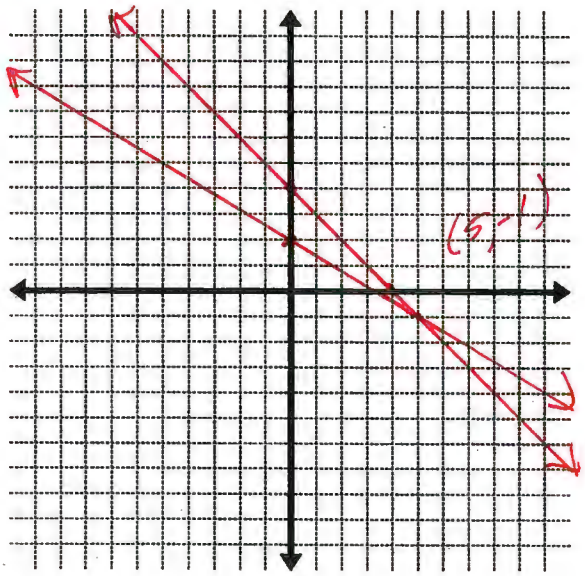
Name_____ Date_____

5.1-5.3 Review – Solving Linear Systems

Solve the systems of equations by graphing. Check you solution afterwards.

1) $y = -x + 4$

$y = \frac{-3}{5}x + 2$



Check:

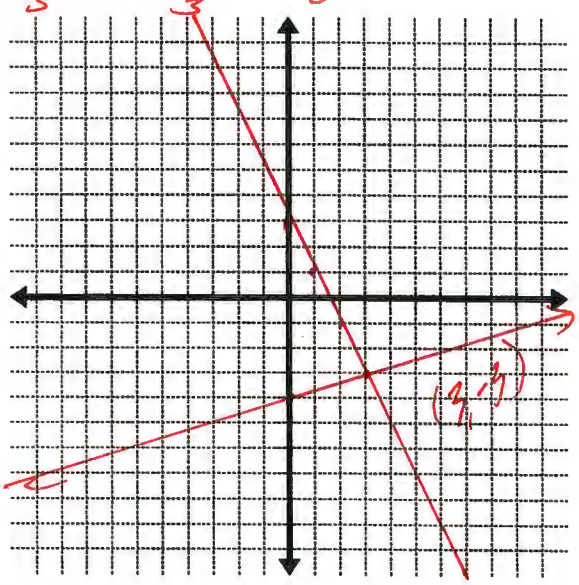
2) $2x + y = 3$

$-2x \quad -2x$

$\frac{3y}{3} = \frac{x - 12}{3}$

$y = -2x + 3$

$y = \frac{1}{3}x - 4$



Check:

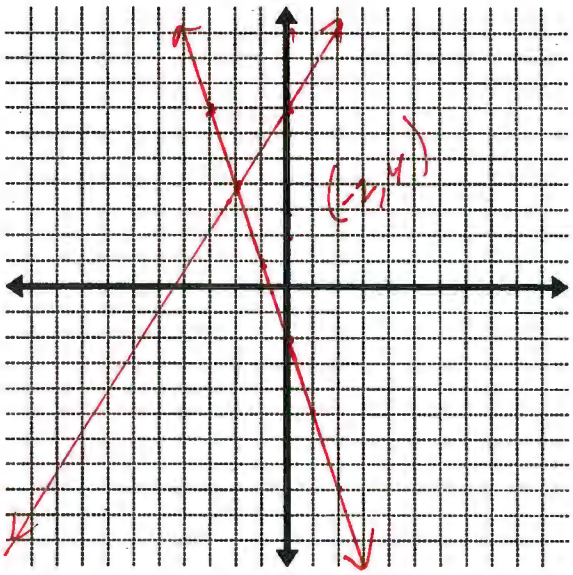
3) $y + 3x = -2$

$-3x \quad -3x$

$2y - 3x = 14$

$y = -3x - 2$

$y = \frac{3}{2}x + 7$



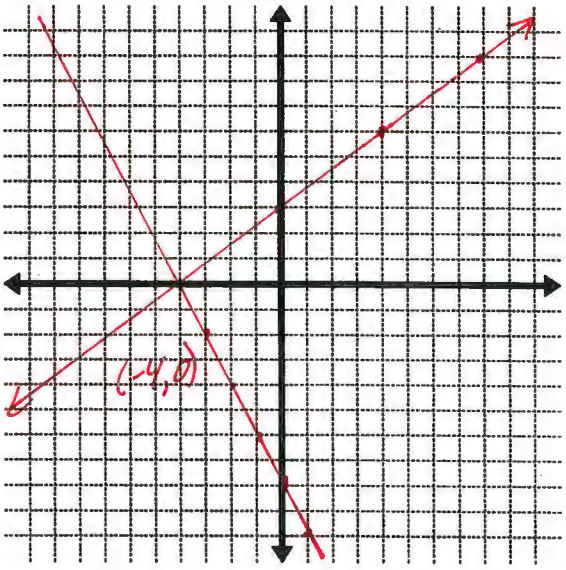
Check:

4) $4y - 3x = 12$

$y + 2x = -8$

$y = \frac{3}{4}x + 3$

$y = -2x - 8$



Check:

Solve the systems of equations by substitution. Check you solution afterwards.

5) $y = 2x$

$x + 3y = 14$

$x + 3(2x) = 14$

$x + 6x = 14$

$\frac{7x}{7} = \frac{14}{7}$

$x = 2$

$y = 4$

$(2, 4)$

6) $x = y - 3$

$5x + 3y = 1$

$5(y-3) + 3y = 1$

$5y - 15 + 3y = 1$

$8y - 15 = 1$

$+15 \quad +15$

$\frac{8y}{8} = \frac{16}{8}$

$y = 2$

$x = -1$

$(-1, 2)$

7) $x - 2y = 6 \rightarrow x = 2y + 6$

$+2y \quad +2y$

$2x + y = 7$

$2(2y+6) + y = 7$

$4y + 12 + y = 7$

$5y + 12 = 7$

$-12 \quad -12$

$\frac{5y}{5} = \frac{-5}{5}$

$y = -1$

$x = 4$

$(4, -1)$

8) $7x + 5y = 2$

$x - y = 2 \rightarrow x = y + 2$

$+y \quad +y$

$7(y+2) + 5y = 2$

$7y + 14 + 5y = 2$

$12y + 14 = 2$

$-14 \quad -14$

$\frac{12y}{12} = \frac{-12}{12}$

$y = -1$

$x = 1$

$(1, -1)$

Solve the systems of equations by elimination. Check you solution afterwards.

9) $-2x+3y=17$

$2x+y=3$

$\frac{4y}{4}=\frac{20}{4}$

$y=5$

$2x+5=3$

$-5\quad -5$

$\frac{2x}{2}=\frac{-2}{2}$

$x=-1$

$(-1,5)$

10) $7x+y=-2$

$-7x+3y=8$

$\frac{-2y}{-2}=\frac{-10}{-2}$

$y=5$

$7x+5=-2$

$-5\quad -5$

$\frac{7x}{7}=\frac{-7}{7}$

$x=-1$

$(-1,5)$

11) $7x+6y=2$

$2(2x-3y=10)$

$7x$

$7x+6y=2$

$4x-6y=20$

$\frac{11x}{11}=\frac{22}{11}$

$x=2$

$7(2)+6y=2$

$14+6y=2$

$-14\quad -14$

$\frac{6y}{6}=\frac{-12}{6}$

$y=-2$

$(2,-2)$

12) $3(9x-2y=15)$

$2(4x+3y=-5)$

$27x-6y=45$

$8x+6y=-10$

$\frac{35x}{35}=\frac{35}{35}$

$x=1$

$9(1)-2y=15$

$9-2y=15$

$-9\quad -9$

$\frac{-2y}{-2}=\frac{6}{-2}$

$y=-3$

$(1,-3)$

13) The price of 2 pears and 6 apples is \$14. The price of 3 pears and 9 apples is \$21. Can you determine the unit prices for pears and apples? Explain.

p = price of a pear

a = price of an apple

$3(2p + 6a = 14)$

$-2(3p + 9a = 21)$ $\rightarrow$

$6p + 18a = 42$

$-6p - 18a = -42$

$0 = 0$

No. Everything cancels out.

14) A bouquet of lilies and tulips has 12 flowers. Lilies cost \$3 each, and tulips cost \$2 each. The bouquet costs \$32. Write and solve a system of linear equations to fi nd the number of lilies and tulips in the bouquet.

x = # of Lilies

y = # of Tulips

$-2(x + y = 12)$

$3x + 2y = 32$ $\rightarrow$

$-2x - 2y = -24$

$3x + 2y = 32$

$x = 8$

$y = 4$

8 Lilies

4 Tulips