Kuta Software - Infinite Algebra 2

Name_____

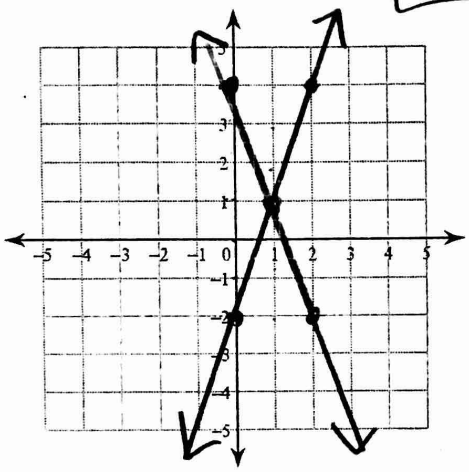
Systems of Two Equations

Date_____ Period____

Solve each system by graphing.

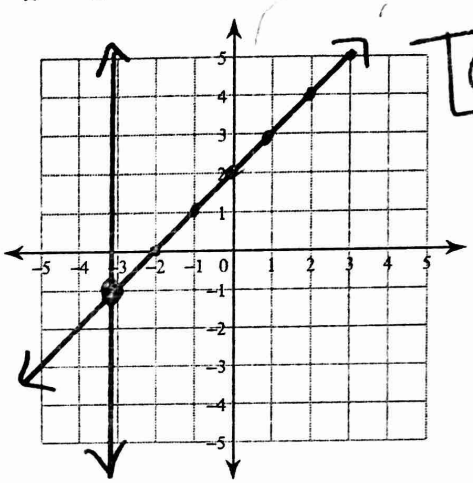
1) $y = -3x + 4$
$y = 3x - 2$

(1,1)



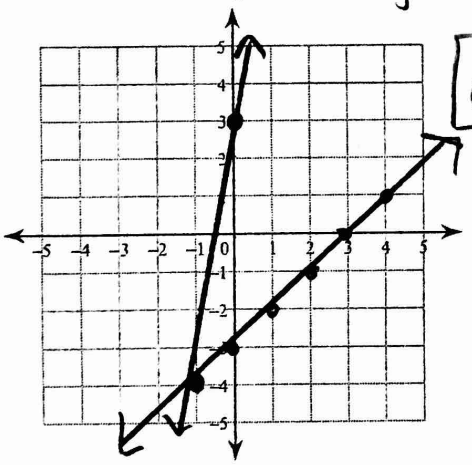
2) $y = x + 2$
$x = -3$

(-3,-1)



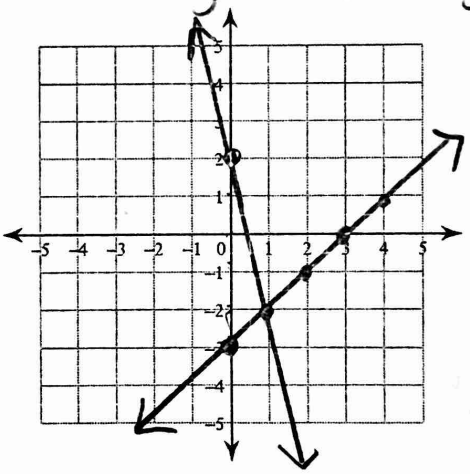
3) $x - y = 3$ $-y = x + 3$ $y = x - 3$
$7x - y = -3$ $-y = -7x - 3$ $y = 7x + 3$

(-1,-4)



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

(1,-2)



Solve each system by substitution.

5) $y = (4x - 9)$ $4x - 9 = x - 3$
$y = x - 3$ $3x = 6$
$x = 2$
$y = 2 - 3 = -1$

(2,-1)

6) $4x + 2y = 10$ $4(y+13) + 2y = 10$
$x - y = 13$ $4y + 52 + 2y = 10$
$x = y + 13$ $6y = -42$
$y = -7$
$x = -7 + 13$
$x = 6$

(6,-7)

7) $y = -5$
$5x + 4y = -20$
$5x + 4(-5) = -20$
$5x - 20 = -20$
$5x = 0$
$x = 0$

(0,-5)

8) $x + 7y = 0$ $x = -7y$
$2x - 8y = 22$
$2(-7y) - 8y = 22$
$-14y - 8y = 22$
$-22y = 22$
$x = -7(-1)$
$x = 7$

(7,-1)

9) $6x+8y=-22$, $y=-5$ — $6x+8(-5)=-22$; $6x-40=-22$; $6x=18$; $x=3$; $(3,-5)$

10) $-7x+2y=18$, $6x+6y=0$ — $\frac{6x}{6}=\frac{-6y}{6}$; $x=-y$; $-7(-y)+2y=18$; $7y+2y=18$; $9y=18$; $y=2$; $x=-(2)$; $(-2,2)$

11) $7x+2y=-19$, $-x+2y=21$, $x=2y-21$ — $7(2y-21)+2y=-19$; $14y-147+2y=-19$; $16y=128$; $y=8$; $x=2(8)-21$; $x=-5$; $(-5,8)$

12) $3x-5y=17$, $y=-7$ — $3x-5(-7)=17$; $3x+35=17$; $3x=-18$; $x=-6$; $(-6,-7)$

13) $-7x+4y=24$, $4x-4y=0$, $4x=4y$, $x=y$ — $-7(y)+4y=24$; $-3y=24$; $y=-8$; $(-8,-8)$

14) $4x-y=20$, $-2x-2y=10$ — $y=4x-20$; $-2x-2(4x-20)=10$; $-2x-8x+40=10$; $-10x=-30$; $x=3$; $y=4(3)-20$; $y=-8$; $(3,-8)$

Solve each system by elimination

15) $8x-6y=-20$ ×2, $-16x+7y=30$ — $16x-12y=-40$; $-5y=-10$; $y=2$; $8x-6(2)=-20$; $8x-12=-20$; $8x=-8$; $x=-1$; $(-1,2)$

16) $6x-12y=24$, $x-6y=4$ ×2 — $-2x-12y=8$; $8x=16$; $x=2$; $-2-6y=4$; $-6y=6$; $y=-1$; $(2,-1)$

17) $-8x-10y=24$, $6x+5y=2$ ×2 — $12x+10y=4$; $4x=28$; $x=7$; $6(7)+5y=2$; $42+5y=2$; $5y=-40$; $y=-8$; $(7,-8)$

18) $-24-8x=12y$, $1+\frac{5}{9}y=-\frac{7}{18}x$ ×18 — $18+10y=-7x$; $(-24=8x+12y)5$; $(18=-7x-10y)6$; $-120=40x+60y$; $108=-42x-60y$; $-12=-2x$; $6=x$; $-24-8(6)=12y$; $-24-48=12y$; $-72=12y$; $-6=y$; $(6,-6)$

19) $-4y-11x=36$, $20=-10x-10y$ — $(-4y-11x=36)10$; $(10y+10x=-20)4$; $-40y-110x=360$; $40y+40x=-80$; $-70x=280$; $x=-4$; $20=40-10y$; $-20=-10y$; $2=y$; $(-4,2)$

20) $-9+5y=-4x$, $-11x=-20+9y$ — $(4x+5y=9)11$; $(-11x-9y=-20)4$; $-9+5=-4x$; $-4=-4x$; $1=x$; $44x+55y=99$; $-44x-36y=-80$; $19y=19$; $y=1$; $(1,1)$

21) $0=-2y+10-6x$, $14-22y=18x$ — $(-10+2y=-6x)3$; $14-22y=18x$; $-30+6y=-18x$; $-16=-16y$; $-1=y$; $14+22=18x$; $36=18x$; $2=x$; $(2,-1)$

22) $-16y=22+6x$, $-11y-4x=15$ — $(-16y=22+6x)4$; $(-11y=15+4x)6$; $-64y=88+24x$; $-66y=90+24x$; $-16(-1)=22+6x$; $16=22+6x$; $-6=6x$; $x=-1$; $\frac{2y}{2}=\frac{-2}{2}$; $y=-1$; $(-1,-1)$

23) $-16+20x-8y=0$, $36=-18y-22x$ — $(-16=-20x+8y)9$; $(36=-22x-18y)4$; $36=-18y-22(0)$; $36=-18y$; $-2=y$; $-144=-180x+72y$; $144=-88x-72y$; $0=268x$; $0=x$; $(0,-2)$

24) $-\frac{5}{7}-\frac{11}{7}x=-y$ ×7, $2y=7+5x$ — $(-5-11x=-7y)2$; $(7+5x=2y)7$; $-10-22x=-14y$; $49+35x=14y$; $39+13x=0$; $13x=-39$; $x=-3$; $2y=7+5(-3)$; $2y=7-15$; $2y=-8$; $y=-4$; $(-3,-4)$

Critical thinking questions:

25) Write a system of equations with the solution (4, –3).

$x+y=1$

$2x+y=5$

* Answers may vary

(16)