

# Notes

2-2

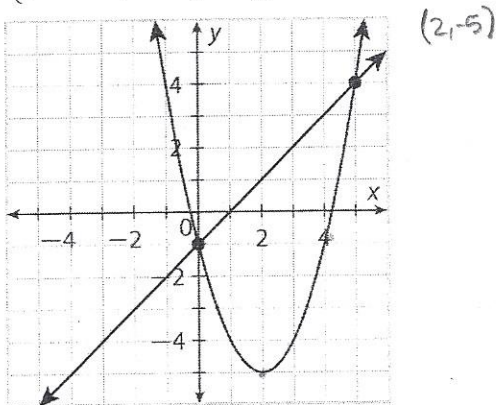
LESSON  
4-3

## Solving Linear-Quadratic Systems

### Practice and Problem Solving: Modified

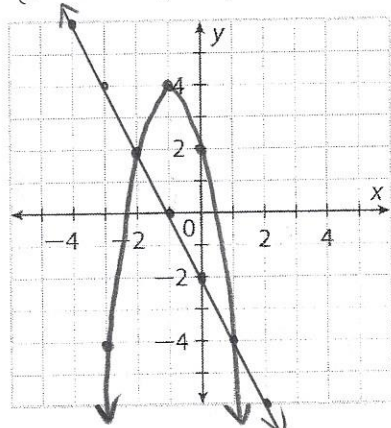
Solve each system represented by the functions graphically.  
The first one is done for you.

1.  $\begin{cases} y+1=x & y=x-1 \\ y+5=(x-2)^2 & y=(x-2)^2-5 \end{cases}$



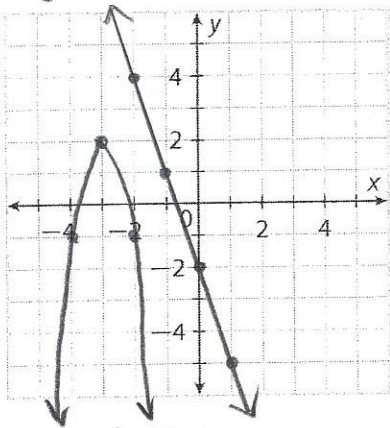
$(0, -1), (5, 4)$

2.  $\begin{cases} y+2x+2=0 & y=-2x-2 \\ y-4=-2(x+1)^2 & y=-2(x+1)^2+4 \end{cases}$



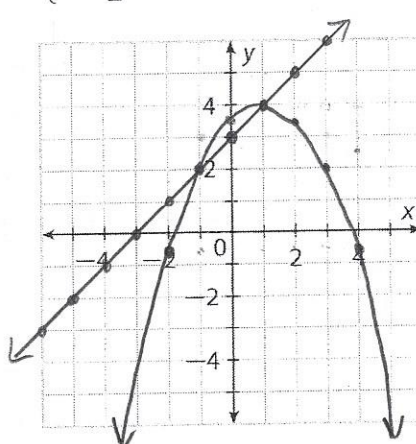
$(-2, 2), (-1, 4)$

3.  $\begin{cases} y=-3x^2-18x-25 & x=\frac{18}{2(-3)} = \frac{18}{-6} = -3 \\ 3x^2+18x+y+25=0 & x=-3 \\ y+3x=-2 & -3(-3)^2-18(-3)-25 \\ y=-3x-2 & -27+54-25=2 \end{cases}$



No Solution

4.  $\begin{cases} y-x-3=0 & y=x+3 \\ y+\frac{1}{2}(x-1)^2=4 & y=-\frac{1}{2}(x-1)^2+4 \end{cases}$



$(1, 4), (-1, 2)$

Solve each system algebraically. The first one is done for you.

$y=-3x-4$   
 $y=-3(-1)-4$   
 $=3-4$   
 $y=-1$

5.  $\begin{cases} 3x+3=y^2+y \\ 3x+4=-y \end{cases}$   
 $3x+3=(-3x-4)^2+(-3x-4)$   
 $3x+3=(-3x-4)(-3x-4)-3x-4$   
 $3x+3=9x^2+12x+12x+16-3x-4$   
 $3x+3=9x^2+21x+12$   
 $9x^2+18x+9=0$

$(-1, -1)$

$(-1, -1)$

$9(x^2+2x+1)=0$

$9(x+1)(x+1)=0$

$y=x^2-9x+12$   
 $x^2-9x=y-12$   
 $x=-y-4$   
 $y=-x-4$   
 $y=-4-4$   
 $y=-8$

$-x-4=x^2-9x+12$   
 $x^2-8x+16=0$   
 $(x-4)(x-4)=0$   
 $x=4$

$(4, -8)$