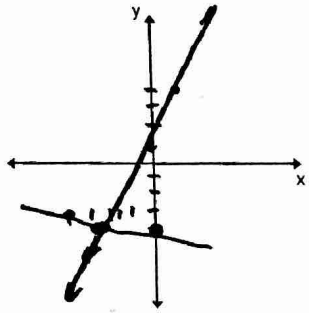
#20 Systems of Equations

Name_____

Use a graphing calculator to estimate the solution.

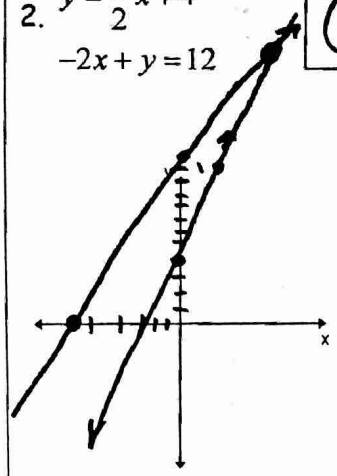
1. $y=-\frac{1}{5}x-4$
$y=3x+1$

$\boxed{-1.5, 3.5}$



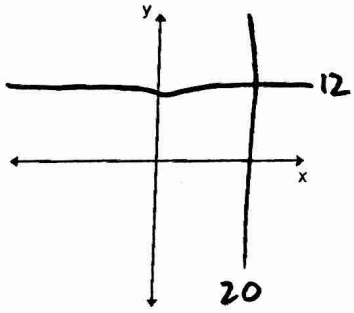
2. $y=\frac{7}{2}x+4$
$-2x+y=12$

$\boxed{(5, 23)}$



3. $y=12$
$x=20$

$\boxed{(20, 12)}$



Use substitution to determine if the ordered pair is a solution to the system.

$(6,11)$

4. $\begin{cases} x+y=17 \\ y=x+7 \end{cases}$

$6+11=17$
$17=17$ ✓
$11=6+7$
$11 \neq 13$ ✗
$\boxed{\text{NO}}$

$(4,-1)$

5. $\begin{cases} 5x+y=19 \\ -2x-y=-7 \end{cases}$

$5(4)+(-1)=19$
$20-1=19$
$19=19$ ✓
$-2(4)-(-1)=-7$
$-8+1=-7$
$-7=-7$ ✓
yes

$(-3,3)$

6. $\begin{cases} -x+3y=12 \\ 6x-y=-21 \end{cases}$

$-(-3)+3(3)=12$
$3+9=12$
$12=12$ ✓
$6(-3)-(3)=-21$
$-18-3=-21$
$-21=-21$ ✓
yes

Solve each system using substitution. Show all work!!

7. $x=7y-4$
$2x-3y=14$

$2(7y-4)-3y=14$
$14y-8-3y=14$
$11y-8=14$
$+8 \quad +8$
$11y=22$
$y=2$
$x=7(2)-4$
$x=14-4=10$

$(10,2)$

8. $y=3x+5$
$2x-3y=6$

$2x-3(3x+5)=6$
$2x-9x-15=6$
$-7x-15=6$
$+15 \quad +15$
$\frac{-7x}{-7}=\frac{21}{-7}$
$x=-3$
$y=3(-3)+5$
$=-9+5$
$=-4$

$(-3,-4)$

9. $y=5x+8$
$x=-7$

$y=5(-7)+8$
$=-35+8$
$y=-27$

$(-7,-27)$