Additional Practice

Solve each system by substitution. Check your answer.

1. $\begin{cases} y=x-2 \\ y=4x+1 \end{cases}$

$x-2=4x+1$ $y=(-1)-2$
$-2=3x+1$ $y=(-3)$
$-8=3x$
$-1=x$ $\boxed{(-1,-3)}$

2. $\begin{cases} y=x-4 \\ y=-x+2 \end{cases}$

$x-4=-x+2$ $y=(3)-4$
$2x-4=2$ $y=-1$
$2x=6$
$x=3$ $\boxed{(3,-1)}$

3. $\begin{cases} y=3x+1 \\ y=5x-3 \end{cases}$

$3x+1=5x-3$ $y=(3)(2)+1$
$1=2x-3$ $y=7$
$4=2x$
$2=x$ $\boxed{(2,7)}$

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

$2x-(-x-3)=6$ $y=-(1)-3$
$2x+x+3=6$ $y=-4$
$3x+3=6$
$3x=3$ $\boxed{(1,-4)}$
$x=1$

5. $\begin{cases} 2x+y=8 \\ y=x-7 \end{cases}$

$2x+(x-7)=8$ $y=(5)-7$
$3x-7=8$ $y=-2$
$3x=15$
$x=5$ $\boxed{(5,-2)}$

6. $\begin{cases} 2x+3y=0 \\ x+2y=-1 \end{cases}$ $x=-2y-1$

$2(-2y-1)+3y=0$ $x=-2(-2)-1$
$-4y-2+3y=0$ $x=3$
$-y-2=0$
$-2=y$ $\boxed{(3,-2)}$

7. $\begin{cases} 3x-2y=7 \\ x+3y=-5 \end{cases}$ $x=-3y-5$

$3(-3y-5)-2y=7$ $x=-3(-2)-5$
$-9y-15-2y=7$ $x=1$
$-11y-15=7$
$-11y=22$ $\boxed{(1,-2)}$
$y=-2$

8. $\begin{cases} -2x+y=0 \\ 5x+3y=-11 \end{cases}$ $y=2x$

$5x+3(2x)=-11$ $y=2(-1)$
$5x+6x=-11$ $y=-2$
$11x=-11$
$x=-1$ $\boxed{(-1,-2)}$

9. $\begin{cases} \left(\frac{1}{2}x+\frac{1}{3}y=5\right)\cdot 6 \\ \left(\frac{1}{4}x+y=10\right)\cdot 4 \end{cases}$ $3x+2y=30$ $x+4y=40$

$x=-4y+40$
$3(-4y+40)+2y=30$ $x=-4(9)+40$
$-12y+120+2y=30$ $x=4$
$-10y+120=30$
$-10y=-90$ $\boxed{(4,9)}$
$y=9$

Write a system of equations to represent the situation. Then, solve the system by substitution.

10. The length of a rectangle is 3 more than its width. The perimeter of the rectangle is 58 cm. What are the rectangle's dimensions?

$L=W+3$ $2L+2W=58$
$2(W+3)+2W=58$
$2W+6+2W=58$
$4W+6=58$ $L=(13)+3$
$4W=52$ $L=16$
$W=13$

__Width=13 cm Length=16 cm__

11. Carla and Benicio work in a men's clothing store. They earn commission from each suit and each pair of shoes they sell. For selling 3 suits and one pair of shoes, Carla has earned $47 in commission. For selling 7 suits and 2 pairs of shoes, Benicio has earned $107 in commission. How much do the salespeople earn for the sale of a suit? for the sale of a pair of shoes?

$x=$ suits $y=$ shoes
$3x+y=47$ $7x+2y=107$
$y=-3x+47$
$7x+2(-3x+47)=107$
$7x-6x+94=107$ $y=-3(13)+47$
$x+94=107$
$x=13$ $y=8$

__Commission is $13 per suit and $8 per pair of shoes__