Mth 096 – Beginning Algebra – **Practice Exam 4 Solutions**

1. $2\cdot 3-2\overset{?}{=}4 \quad 3+3\cdot 2\overset{?}{=}7$

   $6-2=4 \qquad 3+6=7$

   Clearly, the first is true, while the second is not, so this is NOT a solution to the system.

2. Solving for the intercepts, we see that the intercepts for the 1st line are $(0,-4)$ and $(1,0)$.

   The intercepts for the 2nd line are $(0,2)$ and $(-2,0)$.

   From the graph, we can see that the two lines cross at $(2,4)$. Checking this in the original equations shows that it is the solution.

3. Multiplying the first equation by 2 to cancel the *x*'s, we get:

   $$\begin{aligned} 4x-6y&=6\\ -4x+6y&=2 \end{aligned}$$

   Adding the two equations gives:

   $$0=8$$

   Clearly this is not true, so the system is inconsistent. There are *no* solutions.

4. Solving the 2nd equation for *b*, we get:

   $b=5+a$

   Substituting into the 1st equation,

   $3a+5(5+a)=1$

   Solving for *a*,

   $3a+25+5a=1$

   $8a+25=1$

   $8a=-24$

   $a=-3$

   Substituting back into the equation for *b*,

   $b=5+a=5+(-3)=2$

   The solution is then: $a=-3, b=2$. Be sure to check!

5. I chose elimination, with x as the variable to eliminate. First we multiply the 1st equation by -2.

$$-2x+6y=-2$$
$$2x+\ y=9$$

Adding, we get: $7y=7 \quad \Rightarrow \quad y=1$

Substituting back, $2x+y=9 \quad \Rightarrow \quad 2x+1=9 \quad \Rightarrow \quad 2x=8 \quad \Rightarrow \quad x=4$

So the solution is: $x=4,\ y=1$.

6. I chose elimination again, with x as the variable to eliminate. First we multiply the 2nd equation by -2.

$$2x+2y=\ \ 6$$
$$-2x-2y=-6$$

Adding, we get: $0=0$

This is just a true statement, so the system is dependent. There are infinitely many solutions.

7. If we let l = the number of laptops and d = the number of desktops, we can get two equations:

$$\begin{cases} l+d=15 \\ 8l+50d=540 \end{cases}$$

I would chose elimination again. (Can you tell it's my favorite?)

Multiply the 1st equation by -8 to get:

$$-8l\ -8d=-120$$
$$8l+50d=\ \ 540$$

Adding, we get: $42d=420 \quad \Rightarrow \quad d=10$

Since there are 15 total, there must be 5 laptops and 10 desktops.

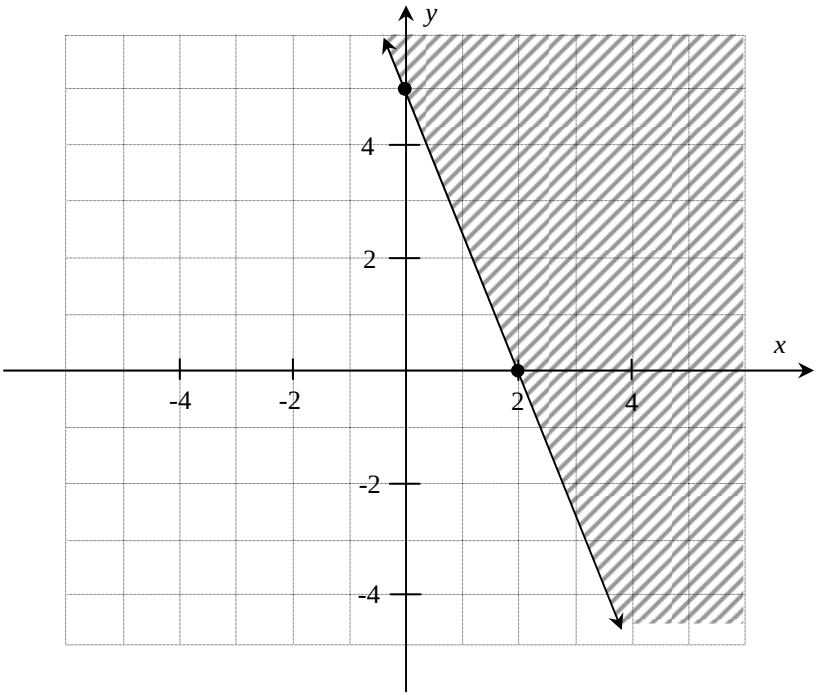
8. If we let n = the number of nickels and d = the number of dimes, the two equations are:

$$\begin{cases} n+d=24 \\ 5n+10d=195 \end{cases}$$

Another acceptable version would be:

$$\begin{cases} n+d=24 \\ 0.05n+0.10d=1.95 \end{cases}$$

9.



10.