

## Math 80 Quiz #6 Answers

1. Rewriting in standard form: 
$$\begin{cases} 5x - 2y = 24 \\ 3x + 3y = 6 \end{cases}$$

Here are two ways to go about this depending on if you choose to eliminate  $x$  or  $y$ :

- **Eliminating  $y$ :** Multiply the first equation by 3 and the second equation by 2  
$$\Rightarrow \begin{cases} 15x - 6y = 72 \\ 6x + 6y = 12 \end{cases} \quad \text{Adding the equations:} \quad 21x = 84 \quad \Rightarrow \quad x = 4$$

Using any of the equations in the system to find  $y$ , you should get  $y = -2$ .

- **Eliminating  $x$ :** Multiply the first equation by 3 and the second equation by  $-5$  (Note: You could instead multiply the first equation by  $-3$  and the second by  $5$ )

$$\Rightarrow \begin{cases} 15x - 6y = 72 \\ -15x - 15y = -30 \end{cases} \quad \text{Adding the equations:} \quad -21y = 42 \quad \Rightarrow \quad y = -2$$

Using any of the equations in the system to find  $x$ , you should get  $x = 4$ .

Solution:  $\boxed{(4, -2)}$

2. **Unknowns:** Width =  $W$ , Length =  $L$

**Equations:**  $2W + 2L = 140$  (since the perimeter is 140)  
 $W = L + 40$  (since the width is 40 meters more than the length)

You can use either substitution or elimination to solve. I will be using substitution:

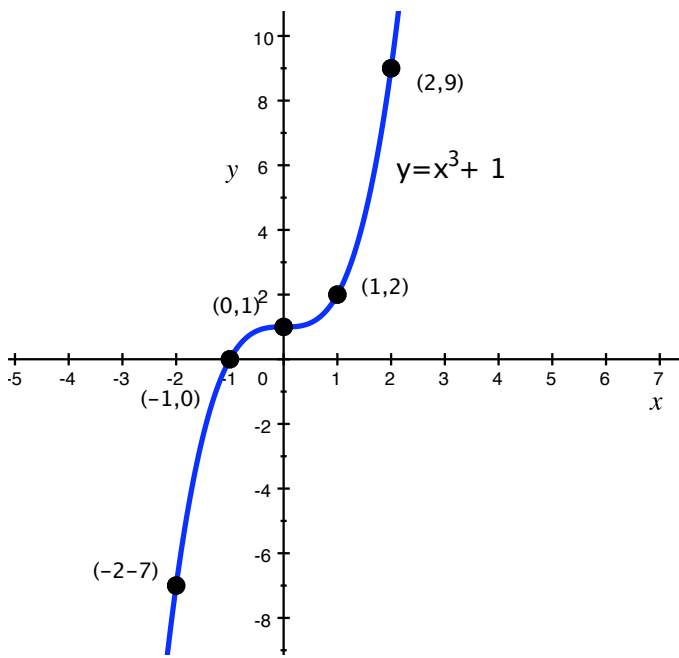
$$2(L + 40) + 2L = 140 \quad \Rightarrow \quad 4L + 80 = 140 \quad \Rightarrow \quad L = 15$$

Solving for  $W$  using either equation gives  $W = 55$ .

**Solution:**  $\boxed{\text{The width is 55 meters and the length is 15 meters.}}$

3. (2 pts.) Graph  $y = x^3 + 1$ . (Make a table of values, draw a nice set of axes, and clearly the points you use.)

$x$	$y$
0	1
1	2
2	9
-1	0
-2	-7



4.  $(12x^3 - 5x^2 + 10) + (4x^3 - x^2 + 2x + 3) = \boxed{16x^3 - 6x^2 + 2x + 13}$  (Combining like terms)