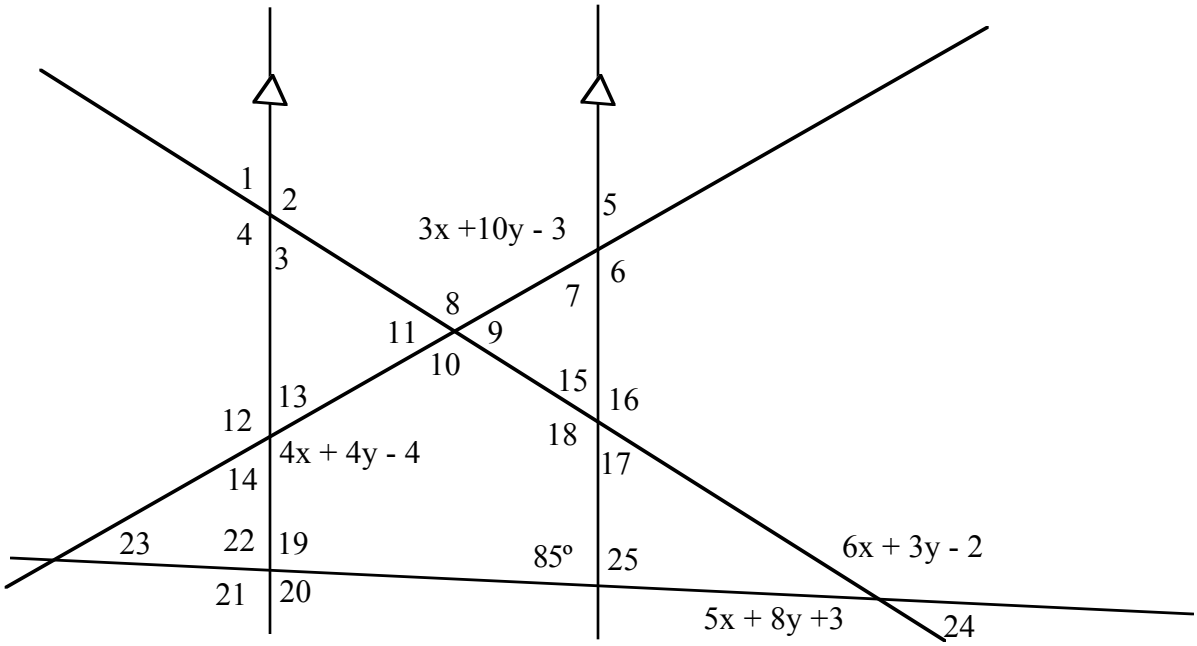
Example Problem Find the measure of all the indicated angles (must solve system of equations)



First: Find *geometric relationships* on the **parallel lines** or using **triangels** that will allow one to create two distinct equations containing both x and y. Write the equations in **standard form**. Then use elimination or cramers rule to find the solutions.

Second: Plug the (x , y) solution back into the expressions on the figure to generate angle measures. Once this has been completed, one should be able to use the **characteristics** of **parallel lines** and **trinangles** to find all the angles.

Example Worked Out:

I. $6x + 3y - 2 = 5x + 8y + 3$: Vertical angles are equal

$x - 5y = 5$: Move variables to one side of equation while moving the constant to the other and simplify to standard form.

II. angle $6 = 4x + 4y - 4$: Corresponding angles on parallel lines

So $3x + 10y - 3 = 4x + 4y - 4$: Vertical angles, after $4x + 4y - 4$ is slid up to angle 6's position

$1 = x - 6y$: Move variables to one side of equation while moving the constant to the other and simplify to standard form.

$x - 6y = 1$: Symmetric Property

E_1: $x - 5y = 5$ $\quad x - 5y = 5$ $\quad x - 5y = 5$

E_2: $x - 6y = 1$ $\quad -1[x - 6y = 1]$ $\quad \underline{-x + 6y = -1}$: Solve system

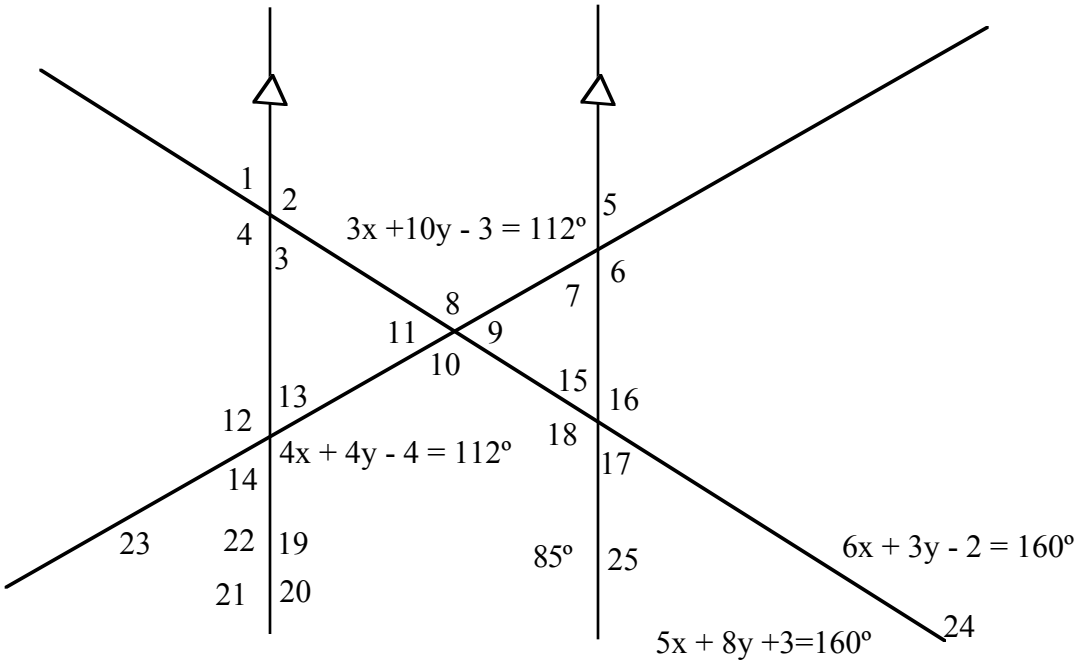
$y = 4$

$x - 5(4) = 5$

$x - 20 = 5$

$x = 25$ so $(25, 4)$

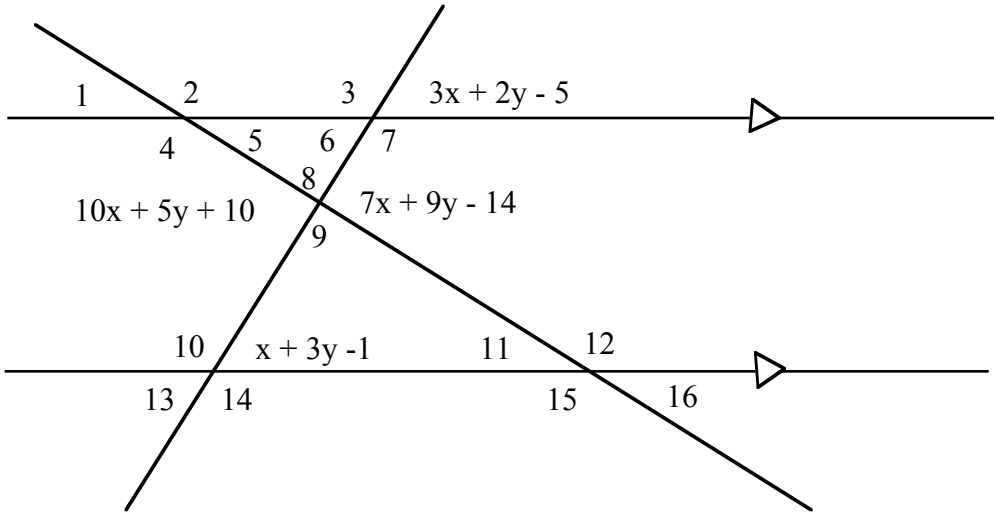
Next fill in the value for the expressions in the figure.



From here it should be straight forward to find all the missing angles using the properties of parallel lines and triangles.

The following problems are for your enjoyment and will be used as the bonus for this chapter. Have them done for Monday. All of the problems have been worked out so that the solutions are **integer values.**

#1 Find the measure of all the indicated angles (must solve system of equations)



m < 1 = _____ m < 9 = _____

m < 2 = _____ m < 10 = _____

m < 3 = _____ m < 11 = _____

m < 4 = _____ m < 12 = _____

m < 5 = _____ m < 13 = _____

m < 6 = _____ m < 14 = _____

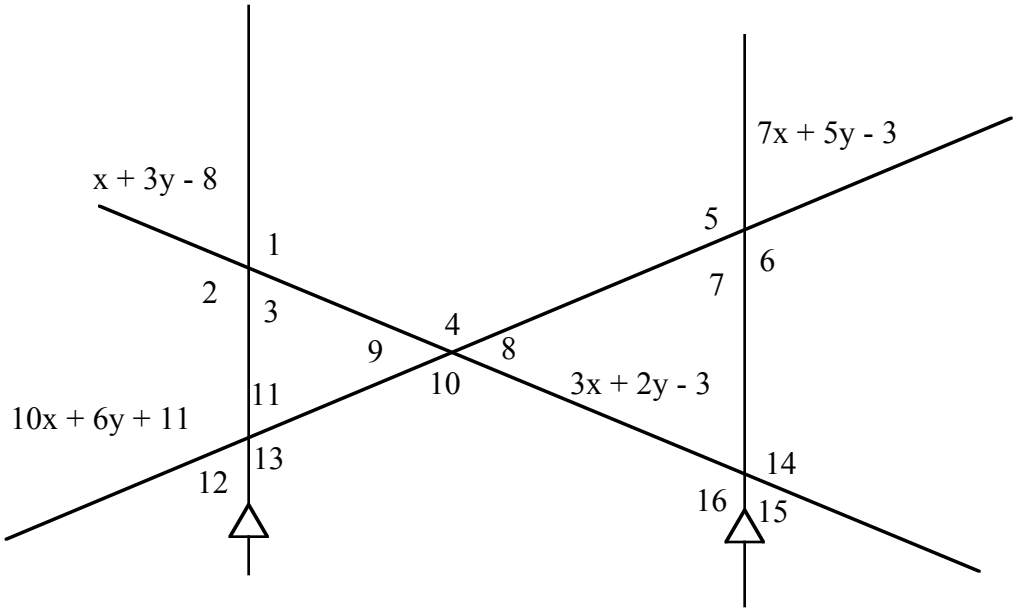
m < 7 = _____ m < 15 = _____

m < 8 = _____ m < 16 = _____

X = _____

Y = _____

#2 Find the measure of all the indicated angles (must solve system of equations)



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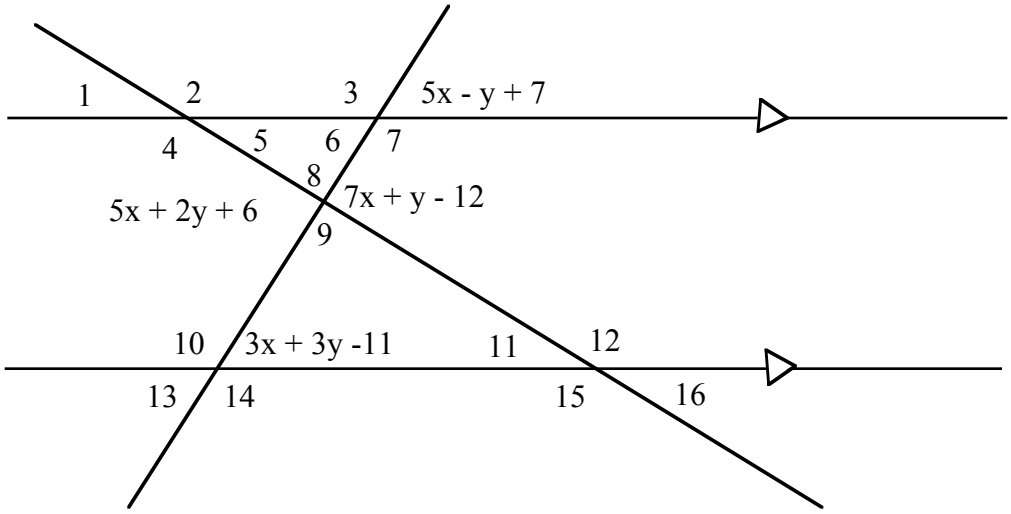
#3 Find the measure of all the indicated angles (must solve system of equations)



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