Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour: \_\_\_\_\_\_\_\_\_\_\_

6.2 Connecting *Ax* + *By* = *C* and *y* = *mx* + *b*

There are two common forms of linear equations with two variables.

* When the values of one variable depend on those of another, it is common to express the relationship as *y* = *mx* + *b*. This equation is in **slope-intercept form**.
* When the values of the two variables combine to produce a fixed third quantity, you can express the relationship as *Ax* + *By* = *C*. This equation is in **standard form**. The equations from 6.1 are also in standard form.

The graph of each type of equation is a straight line. As you work on the problems today, look for connections between slope-intercept form and standard form.

1. Four students tried to write 12*x* + 3*y* = 9 in equivalent *y* = *mx* + *b* form.



Did each student get an equation equivalent to the original *Ax* + *By* = *C* form? If so, explain the reasoning for each step. If not, tell what errors the student made.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Write each equation in *y* = *mx* + *b* form.
2. *x* – *y* = 4
3. *2*x *+ y* = 9
4. 8*x* + 4*y* = -12
5. *c*  = *ax* + *dy*
6. Write each equation in *Ax* + *By* = *C* form.
7. *y* = 5 – 3x
8. *y* = $\frac{3}{4}$*x* + $\frac{1}{4}$
9. *x* = 2*y* – 3
10. *fy* + 3 = *gx* – 15