**Unit 3: Linear Relationships**

**Learning Target 5: Write Linear Equations**



 **Write an equation in point-slope form and slope-intercept form for the line that passes through (4, –4) and (8, –10).**

Find the slope.

 slope = Slope formula

 =  (*x*1, *y*1) = (4, −4); (*x*2, *y*2) = (8, −10)

 = or − Simplify.

Use the slope and the coordinates on one point to write the equation in
point-slope form.

 *y – y*1 = *m*(*x − x*1) Point-slope form

*y* − (−4) = − (*x* − 4) (*x*1, *y*1) = (4, −4); *m* = −

 *y* + 4 = − (*x* − 4) Simplify.

 *y* + 4 = − *x* + 6 Distributive Property

 *y* = − *x* + 2 Subtraction Property of Equality

So, the equation in point-slope form is *y* + 4 = − (*x* − 4).
The equation in slope-intercept form is *y* = − *x* + 2.



 **Write *y* − 4 = −3(*x* – 3) in standard form.**

*y* − 4 = −3(*x* − 3) Write the equation.

 *y* − 4 = −3*x* + 9 Distributive Property

 *y* = −3*x* + 13 Addition Property of Equality

3*x + y =* 13 Addition Property of Equality