**Objectives: Students will be able to create and graph linear functions in all three forms:**

**y- intercept, point slope and standard form. Students will be able to create functions parallel or perpendicular to some given lines.**

Standards:

[A2.F.BF.A.1](http://www.tennessee.gov/assets/entities/education/attachments/std_math_algebra_II.pdf) Write a function that describes a relationship between two quantities.

[A2.F.BF.A.1a](http://www.tennessee.gov/assets/entities/education/attachments/std_math_algebra_II.pdf) Determine an explicit expression, a recursive process, or steps for calculation from a context.

[A2.F.BF.A.1b](http://www.tennessee.gov/assets/entities/education/attachments/std_math_algebra_II.pdf) Combine standard function types using arithmetic operations.

**2-4 More Linear Functions**

**Warm up**

**Graph a function -2x + 3y = 6. Write it in y-intercept form then graph.**

**Vocabulary**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** - the slopes of these lines are **equal.**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** - the slopes of these lines are **negative reciprocals** of each other.

Examples of negative reciprocals : 1/3 🡪 \_\_\_\_\_ -2/3 🡪 \_\_\_\_\_\_ -1 🡪 \_\_\_\_\_\_ 5 🡪 \_\_\_\_\_\_

**Formulas**

* point-slope form of a line is $y-y\_{1}=m(x-x\_{1})$
* standard form of a linear equation is $Ax+By=C$
* m =$-\frac{A}{B}$, *y*-intercept = $\frac{C}{B}$, *x*-intercept = $\frac{C}{A}$

**Examples**

1. Write the equation of the line that passes through (-6, 2) with a slope of $\frac{2}{3}$.

a) y-intercept form b) point slope form c) standard form

1. Write the equation of the line through (-3, 2) and (5, 8).

a) y-intercept form b) point slope form c) standard form

1. Write the equation $y= \frac{3}{4}x-5$ in standard form. Use **integer** coefficients.
2. What is the equation of the line in point-slope form?
3. Find the x- and y-intercepts of $2x+3y=-12$.
4. What is the equation of the line **parallel** to $y=2x-3$ through (1, -3) in slope-intercept form?
5. What is the equation of the line **perpendicular** to $y= \frac{2}{3}x-1$ through (-2, 4) in slope-intercept form?

**HOMEWORK!!! Complete your assignment on a separate sheet of paper. Show all Work**

1. Write an equation for each line in slope-intercept form
2. slope = -3, through (1, -4) **b**. slope = $\frac{1}{2}$ , through (2, 3)
3. What are the intercepts of $3x+y=6$? Graph the equation.
4. If the intercepts of a line are (*a*, 0) and (0, *b*), what is the slope of the line?
5. Write the equation of the line through (1, 9) and (6, 2) in point-slope form?
6. Write an equation of each line in standard form with integer coefficients.
7. $y=-7x-9$ b. $y=-\frac{3}{5}x+3$
8. Write an equation for the line shown in standard form.