Course: MFM2P Gr. 10 Applied **Lesson: 4 - 5**

Unit: Linear Equations **Topic: Converting from Standard to y=mx+b Form**

- ***homework check:*** **Lesson 4 - 4**

- ***note:*** **Converting from Standard to y=mx+b Form**

Linear equations come in two basic forms: either slope intercept form $y = mx + b$ or standard form $ax + by + c = 0$. We can rewrite an equation in either form by rearranging. To put an equation in slope intercept form, we isolate the y variable. To put an equation into standard form, we rearrange so that everything is located on one side of the equal sign. In standard form, there can be no fractions and the value on x must be positive. For example,

a) write the given equation in standard form.
$y = -2x + 3$ since the value of x is negative, move the x term to the left to make it positive
$2x + y = 3$ now bring the constant to the left side as well
$2x + y - 3 = 0$

b) write the given equation in slope intercept form
$3x - 2y + 6 = 0$ bring the y term to the right side
$3x + 6 = 2y$ divide every term by the constant
$\frac{3x}{2} + \frac{6}{2} = y$ reduce all terms possible
$y = \frac{3}{2}x + 3$

c) write the given equation in standard form
$y = 3x + 5$ since the x term is already positive, bring the y term to the right leaving 0 on the left
$0 = 3x - y + 5$

d) identify the slope and y intercept of the given relation

$6x - 2y + 4 = 0$ to identify slope, we need $y = mx + b$ form

$6x + 4 = 2y$

$\frac{6x}{2} + \frac{4}{2} = y$

$3x + 2 = y$ from this form, we can easily identify the slope and y intercept

y intercept $(0, 2)$

slope $m = 3$

homework assignment: **<u>Lesson 4 - 5</u>**

MFM 2P Mrs. Roen Name: _____

Lesson 4 – 5: Converting from y-intercept to Standard Form

1. Given the equation in standard form, rearrange to y-intercept form, then identify the slope and y-intercept.

a) $3x + y + 6 = 0$ **b)** $x - 4y + 8 = 0$ **c)** $5x - 2y - 4 = 0$ **d)** $2x - y + 1 = 0$

2. Rewrite each equation in y-intercept form.

a) $2x + y - 1 = 0$ **b)** $3x + y - 2 = 0$ **c)** $2x + y - 4 = 0$ **d)** $5x + y + 8 = 0$

e) $x - y - 5 = 0$ **f)** $3x - y - 2 = 0$ **g)** $2x - 2y + 5 = 0$ **h)** $8x - 4y - 20 = 0$

3. Rearrange each equation into Standard Form.

a) $y = 2x - 3$ **b)** $y = \frac{1}{3}x + 1$ **c)** $y = -2x + 3$ **d)** $y = -\frac{1}{2}x + 5$

4. Rearrange each equation into Standard Form.

a) $y = -2x - 7$ **b)** $y = -\frac{2}{3}x - 1$ **c)** $y = \frac{2}{5}x - 4$ **d)** $y = 5x - 1$

5. The line $3x + 4y + C = 0$ **passes through the point** $A(1, 2)$ **. Find C.**

6. The line $Ax + 2y - 5 = 0$ **passes through the point** $B(1, 0)$ **. Find A.**

7. The line $y = 4x + b$ **passes through the point** $C(8, -3)$ **. Find b.**

8. a) A banquet hall charges $6675 for an event with 175 guests. If the cost per person is $29, find the flat fee charged for the use of the hall.

b) The same hall charges another organization $11 875 for an event with 325 guests. If the cost for this event is $31 per person, what is the flat fee for use of the hall?