LANDMARK COLLEGE
INSTITUTE FOR RESEARCH AND TRAINING

Subject: Algebra	Date:	Time:

Main Ideas - Topics	**Class Notes**
Slope of a line	Slope is the ratio of the vertical change to the horizontal change. m = change in y = y2 – y1 change in x = x2 – x1 x2 – x1 is called the ***run*** y2 – y1 is called the ***rise*** Slope = rise run
Direction of a line and its steepness	The greater the absolute value of the slope, the steeper the line.
Forms of linear equations	
1. Standard form for a linear equation	Ax + By = C
2. Slope – Intercept form	
▪ **slope intercept formula**	y = mx + b
▪ **m is slope**	m = ☐
▪ **b is y intercept**	b = ☐
▪ **point of 4 intercept**	(0,b) = (0, ____)
▪ **Graph**	Graph y2 – y1 = rise x2 – x1 run
Example:	y = ¼ x + 3 slope is ¼, y intercept is (0, 3) start at (0, 3), then go up 1 and over 4 Vertical line = # = undefined (error) 0 Horizontal line = 0 = 0 #

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3. Point – Slope Form	$y - y1 = m(x - x1)$ Use this form : 1. When given a slope and a point (other than the intercept) 2. 2 points on a line Example: Write an equation of a line with a slope of ¼ with a point of (6,8) Make sure your final answer is in y = form Y1 and x1 come from the set of coordinates
Steps:	1. Substitute into equation for 'm' and (x,y) $y - 8 = 1/4 (x - 6)$ 2. Distribute 1/4 $y - 8 = 1/4x - 3/2$ 3. Move -8 to get y = form $y = 1/4x + 13/2$ (or 6.5)

Self-Test

Standard Form? Slope-Intercept Form? Point-Slope Form? If you are asked to write an equation of a line and are given the slope and y-intercept… If you are asked to write an equation of a line and are given a slope and a point (which is not the y-intercept)… If you are asked to write an equation of a line and are given two points… If you are trying to graph the equation of the line… If you are asked to write an equation and a point is known,	

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and the line is parallel to another…	

Summary

When asked to write an equation of a line and given the slope and y – intercept:

Use slope intercept form: $y = mx + b$

When asked to write an equation of a line and given a slope and a point (which is not the y – intercept):

Use point slope form: $y - y1 = m(x - x1)$

When trying to graph the equation of a line:

Use slope intercept form: $y = mx + b$ (starting point is (0,b) and slope is rise over run

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