Name:

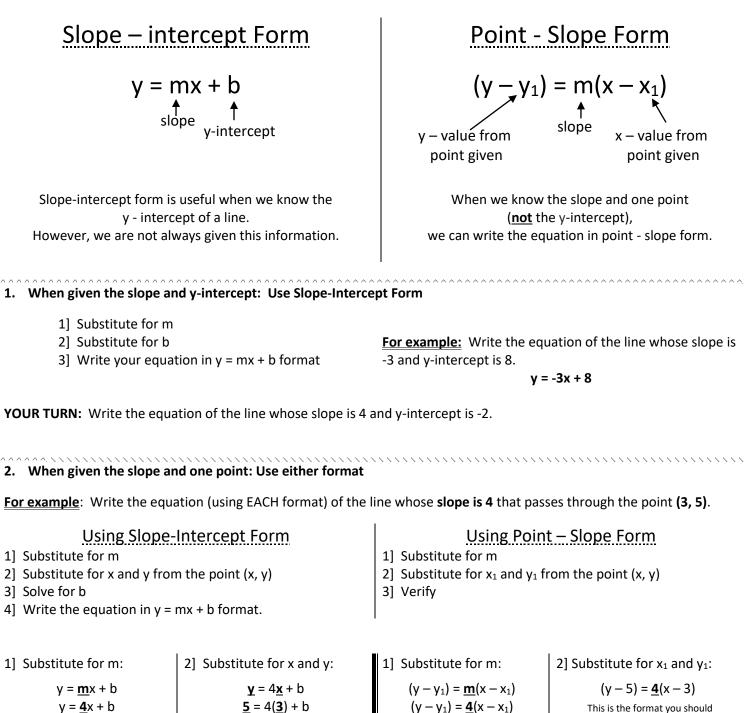
-7 = b

Date:

Period:

Writing the Equation of a Line

There are two different formats for writing the equation of a line.



These should

match

leave your equation in

+5 +5

_ y = 4x - 7

YOUR TURN: Write the equation (using EACH format) of the line whose slope is 2 that passes through the point (-3, 4).

Using Point – Slope Form

1] Substitute for m:	2] Substitute for x and y:	1] Substitute for m:	2] Substitute for x_1 and y_1 :
3] <u>Solve</u> for b:	4] Write in y = mx + b format	Verify:	

3. When given two points: Use either format

Using Slope-Intercept Form:

For example: Write the equation (using EACH format) of the line that passes through the points (2, 5) and (4, 11).

Using Slope-Intercept Form:	Using Point – Slope Form		
1] Find m using the slope formula	1] Find m using the slope formula		
2] Substitute for m	2] Substitute for m		
Substitute for x and y from EITHER point (x, y)	 Substitute for x₁ and y₁ from EITHER point (x, y) 		
4] Solve for b	4] Verify		
5] Write the equation in $y = mx + b$ format.			

1] Find m (since the first step is the same for both formats, you only have to find the slope once:

$m = \frac{y_2}{x_2} - \frac{y_1}{x_1} = \frac{11}{4} - \frac{5}{2} = \frac{6}{2} = \frac{3}{1}$					
2] Substitute for m:	3] Substitute for x and y:	2] Substitute for m:	3] Substitute for x ₁ and y ₁ :		
$y = \underline{\mathbf{m}}\mathbf{x} + \mathbf{b}$ $y = \underline{3}\mathbf{x} + \mathbf{b}$	<u>γ</u> = 3 <u>x</u> + b <u>5</u> = 3(<u>2</u>) + b	$(y - y_1) = \underline{m}(x - x_1)$ $(y - y_1) = \underline{3}(x - x_1)$	$(y - 5) = \underline{3}(x - 2)$ This is the format you should leave your equation in		
4] <u>Solve</u> for b:	5] Write in y = mx + b format	Verify:			
5 = 3(2) + b 5 = 6 + b -6 = -6 -1 = b	y = 3x - 1				

YOUR TURN: Write the equation (using EACH format) of the line that passes through the points (3, 1) and (9, 7).

1] Find m:

2] Substitute for m:	3] Substitute for x and y:	2] Substitute for m:	3] Substitute for x ₁ and y ₁ :
4] <u>Solve</u> for b:	5] Write in y = mx + b format	Verify:	·
			Writing the Equation of a Line
			Writing the Equation of a Line