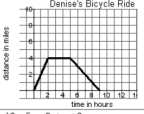


pg. 30

GSE Algebra I Unit 2B: Reasoning with Linear Equations & Inequalities Name _____ Study Guide

pg. 29

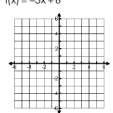
What you need to know & be able to do	Things to remember	Problem	Problem												
✓ Recognize a Function	<ul style="list-style-type: none"> Make sure the same x doesn't have different y's In a graph, it should pass the vertical line test 	Function or Not a Function? Why? 1. (2, 3) (-2, 5) (3, 3) (-2, 5)	Function or Not a Function? Why? <table border="1"> <tr> <td>2.</td> <td>3.</td> <td>4.</td> <td>5.</td> </tr> <tr> <td>7</td> <td>-2</td> <td>-7</td> <td>-2</td> </tr> </table>	2.	3.	4.	5.	7	-2	-7	-2				
2.	3.	4.	5.												
7	-2	-7	-2												
✓ Evaluate Function Notation from an Equation	<ul style="list-style-type: none"> Pick the correct function and plug in for all variables. 	Evaluate questions 3-6 using the following functions: $f(x) = 4x - 3$ $g(x) = 3x^2 - x$ $h(x) = -3(2)^x + 2$	5. $g(-2) =$ 6. $h(-1) =$												
✓ Evaluate Function Notation from a Table	<ul style="list-style-type: none"> Remember that a table is already a set of inputs and outputs 	Use the following table to answer questions 7-9. <table border="1"> <tr> <td>x</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>G(x)</td> <td>-1</td> <td>-3</td> <td>-4</td> <td>-3</td> <td>-1</td> </tr> </table>	x	2	3	4	5	6	G(x)	-1	-3	-4	-3	-1	7. $G(3) =$ 8. $G(5) =$ 9. $G(x) = -1, x =$
x	2	3	4	5	6										
G(x)	-1	-3	-4	-3	-1										
✓ Evaluate Function Notation from a Graph	<ul style="list-style-type: none"> Find the correct coordinate pair from the graph. If you know the y-value, there might be multiple x-values 	Use the following graph to answer questions 10-12. Think of the graph below as function M(h) where h is the time in hours and M is her miles from home. 	10. $M(6) =$ 11. $M(h) = 2, h =$ 12. Explain the meaning of #10 and #11.												
✓ Find Average Rate of Change	<ul style="list-style-type: none"> Find y's for each x Use formula $m = \frac{y_2 - y_1}{x_2 - x_1}$ 	13. For $-2 < x < 3$ $f(x) = 3x - 4$	14. For $-1 < x < 2$ <table border="1"> <tr> <td>x</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> </tr> <tr> <td>H(x)</td> <td>5</td> <td>3.5</td> <td>2</td> <td>0.5</td> </tr> </table>	x	-1	0	1	2	H(x)	5	3.5	2	0.5		
x	-1	0	1	2											
H(x)	5	3.5	2	0.5											
* Isolate a Variable in a Formula	<ul style="list-style-type: none"> Backwards, free the ground up! 	15. Solve for x: $y = -5x + 45$	16. Solve for L: $P = 2(L + W)$												

GSE Algebra I Unit 2B: Reasoning with Linear Equations & Inequalities Name _____ Study Guide

Describe the Domain and Range of a Function	Describe the domain and range of the following.										
<ul style="list-style-type: none"> Continuous functions are CONNECTED and use interval notation $< x <$ Discrete functions are NOT CONNECTED and use set notation $\{ \dots \}$ 	17. (2, 4) (3, -3) (1, 5) (-2, 4) 18. <table border="1"> <tr> <td>x</td> <td>3</td> <td>4</td> <td>3</td> <td>5</td> </tr> <tr> <td>f(x)</td> <td>7</td> <td>-2</td> <td>-7</td> <td>-2</td> </tr> </table>	x	3	4	3	5	f(x)	7	-2	-7	-2
x	3	4	3	5							
f(x)	7	-2	-7	-2							
Write a Linear Equation from a Scenario $y = mx + b$ <ul style="list-style-type: none"> m - increase or decrease b - starting point 	20. Crystal gets paid \$250 a week and \$50 for every computer she sells. Write an equation in function notation that represents her weekly income. 21. Andy wants to mail a package. It costs \$7 plus \$0.25 for every ounce the package weighs. Write an equation in function notation that represents the total cost of shipping the package.										
Compare Linear Equations <ul style="list-style-type: none"> Write 2 linear equations Graph the equations to find where they are the same $y = mx + b$ 	Two companies are offering deals on leasing a new car. Toyota says they will charge you \$2000 to begin with and then you will pay \$200 each month. Honda says that they will charge you \$1000 to begin with but you will pay \$400 each month. 22. Write an equation for each company. Toyota: _____ Honda: _____ 23. Which company has the greater rate of change? 24. Which company had the lesser y-intercept? 25. Which company is better for 5 months? 26. When will it be cheaper to buy a car from Toyota?										
Solve Consecutive Integer Problems Start with x, $x + 1, x + 2, \dots$	27. consecutive integers add up to 123. Find the three integers. 28. consecutive EVEN integers add up to 336. Find the integers.										


pg. 31

GSE Algebra I Unit 2B: Reasoning with Linear Equations & Inequalities Name _____ Study Guide

* Solve Perimeter Problems	<ul style="list-style-type: none"> Draw a picture Define your length and width Add all 4 sides Solve for both variables 	29. The width of a rectangle is 3 feet longer than the length. The perimeter of the rectangle is 110 feet. Find the length and the width.	30. The length of a rectangle is 5 inches more than the width. The perimeter is 34 inches. Find the length and width.
* Solve Average Problems	<ul style="list-style-type: none"> Add the values and x Divide by the number of numbers Set equal to the average Solve for x 	31. You are trying to save \$25 a week to buy a new CD player. During the last 4 weeks you have saved \$35, \$25, \$16, and \$32. How much do you need to save this week to average \$25 for the 5 weeks?	32. Currently, you have made a \$75, \$83, and a \$78 on your tests in math. What do you need to make on the next test in order to get an average of an 80?
Describe Characteristics of Linear Functions	<ul style="list-style-type: none"> Domain Range Y-int X-int Inc/Dec Asymptote Rate of Change 	33. Graph the function $f(x) = -3x + 6$ 	Domain: _____ Range: _____ X-int: _____ Y-int: _____ Inc or Dec _____ RoC from $x = 0$ to 2: _____
Solve for a Variable in Equations	<ul style="list-style-type: none"> $ax + by = c$ Never move the variable you're solving for. 	34. Gordon is going to buy fruit for a smoothie. He will buy raspberries that are \$4 a carton and strawberries, \$5 a carton. He has \$24 to spend. Write an equation to represent all the combinations of fruit that he can buy.	35. Using the equation from #34, solve for R. How many raspberries can he buy?
* Write a System of Equations	<ul style="list-style-type: none"> Define x and y. Set up two equations. Decide the best method. Solve. 	37. Amy's school is selling tickets to a choral performance. A senior citizen's ticket is \$3 and a child's ticket is \$5. If they made \$1450 dollars and sold a total of 350 child and senior citizen tickets, how many of each ticket did they sell?	38. The band is selling wrapping paper for a fundraiser. Customers can buy plain and shiny wrapping paper. Suzy bought 2 plain and 2 shiny rolls for \$28. Oscar bought 4 plain and 1 shiny roll for \$29. How much does each type of wrapping paper cost?
Use the Recursive Form of Arithmetic Sequence	<ul style="list-style-type: none"> Requires TWO parts. a_1 - first term $d = a_n - a_{n-1}$ common difference 	39. Write the recursive formula for the sequence: 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40, 43, 46, 49, 52, 55, 58, 61, 64, 67, 70, 73, 76, 79, 82, 85, 88, 91, 94, 97, 100	40. Write the first 4 terms of $a_n = 3n - 2$

pg. 32

GSE Algebra I Unit 2B: Reasoning with Linear Equations & Inequalities Name _____ Study Guide

Write the Closed/Explicit Form of an Arithmetic Sequence	<ul style="list-style-type: none"> Use the formula $a_n = a_1 + (n-1)d$ Takes the form $y = mx + b$ after being simplified 	41. Write the explicit equation for the sequence 9, 5, 1, -3, -7, ... 42. What is the domain and range of the sequence in #41? 43. Write the first 5 terms of the sequence $a_n = 3n - 4$ 44. What is the 20th term?
Write and Solve an Inequality	<ul style="list-style-type: none"> Pay attention to the direction of the inequality sign. When multiplying or dividing by a negative, switch the direction. Graph the inequality on a number line to represent ALL of the possible solutions. Maximums and Minimums will be found at the intercepts 	Yui needs at least \$1200 to pay for his car. He currently has \$150. He makes \$10 an hour at Subway and \$15 an hour mowing lawns. 45. Write an inequality that represents Yui's money needs. Use x for hours worked at Subway and y for hours mowing lawns. 46. If Yui works 15 hours at Subway, how many hours does he need to work mowing lawns? 47. If Yui works 30 hours mowing lawns, how many hours does he need to work at Subway? 48. Graph the inequality. 
Graph a System of Linear Inequalities	<ul style="list-style-type: none"> Make sure both equations are in slope-intercept form. Decide if the lines will be solid or dashed. Graph the lines. Test a point - typically (0,0). Shade appropriately. 	49. What is the minimum number of hours that Yui could work and still have enough money? 50. $y > 3x - 3$ $y \leq \frac{1}{2}x + 2$ 