Unit 4: Linear Functions Review Sheet Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Answer Key at the bottom of each page.*

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| **SKILL 11: I can write/build linear functions.** | |
| Level 1:  **1.)** The temperature is 35° and rises 4° per hour.   1. Write a recursive equation representing this situation:   START = \_\_\_\_\_\_\_\_\_\_\_  NEXT = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. If *h* = hours and *T* = temperature, write an explicit equation representing this situation.   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Level 3:  **4.)** Write the equation and list the type of slope of the graphs below:   1. Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   Slope: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_     1. Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   Slope: \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_  **5.)** A school’s population is increasing at a linear rate. In the year 5, the school’s population was 2,051. In the year 13, the school’s population was 2,195.   1. Find the slope. *Show work.* 2. Find the *y*-intercept. *Show work.* 3. Write an equation in slope-intercept form representing the situation: |
| Level 2:   |  |  | | --- | --- | | ***x*** | ***y*** | | -1 | -5.75 | | 0 | -5 | | 1 | -4.25 | | 2 | -3.5 |   **2.)** Use the table to answer the questions:  a.) What is the slope? \_\_\_\_\_\_  b.) What is the *y*-intercept? \_\_\_\_\_\_\_  c.) Write an equation in slope-intercept form representing this situation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **3.)** Find the slope and y-intercept of the graph below. Write an equation in slope-intercept form.    Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **SKILL 12: I can interpret linear functions.** | |
| Level 1:   |  |  | | --- | --- | | **Time (hours)** | **Distance (miles)** | | 1 | 64 | | 2 | 96 | | 3 | 128 | | 4 | 160 |   **6.)** Given the table:   1. Find the rate of change: 2. Interpret in words what your answer in part a.) represents in this situation.   **7.)** Given the linear equation, fill in the table and graph the line:  https://encrypted-tbn2.gstatic.com/images?q=tbn:ANd9GcSEt-0IcnlV9pFIGJSZyvlLTxaMxI2Idwz1QilCv-qwGynVB8Mxvw  *f*(x) = ½ x – 3   |  |  | | --- | --- | | ***x*** | ***f*(*x*)** | | -4 |  | | -2 |  | | 0 |  | | 2 |  | | 4 |  | | Level 3:  **11.)** Two elevators are running in a high-rise hotel. Let *y* represent the height (in feet) above ground level and *x* represent time (in seconds)  **Elevator 1:** *y* = –1.4*x* + 230    **Elevator 2:**  a.) Which elevator has the highest starting value? \_\_\_\_\_\_ by how much? \_\_\_\_\_\_\_\_\_\_\_\_  b.) Which elevator has the steepest slope? \_\_\_\_\_\_\_\_  **12.)** Given the graph below representing an Athletic Club Account, answer the following equations:       1. How much did the account start with? \_\_\_\_\_\_\_ 2. About how much is the account decreasing per visit? 3. Write an equation representing this line:   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. How many visits will result in a balance of $140?   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Level 2:  **8.)** If you shift *f*(x) = ½ x – 3 **up 3 units**, what is the new equation?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **9.)** If you **double the slope** of  *f*(x) = ½ x – 3, what is the new equation? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **10.)** Find the slope and *y*-intercept of the equation and graph on the line below.  –3*x* – 2*y* = –10  *Work:*  Slope: \_\_\_\_\_ *y*-int: \_\_\_\_\_ *Graph this line on the graph above.* |