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.* |