Task Model 6 **Response Type:** **Matching Tables** **DOK Level 2** **8.F.3** Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1, 1), (2, 4) and (3, 9), which are not on a straight line.* **Evidence Required:** 6. The student recognizes and gives examples of functions that are not linear. **Tools:** Calculator

Prompt Features: The student recognizes representations of nonlinear functions.
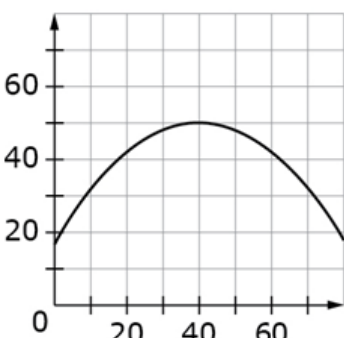
Stimulus Guidelines:
- Tables and graphs should be labeled.
- Tables should include 3–5 sets of values.
- Linear equations can be either $y = mx + b$, where $b \neq 0$, or $y = ax + by + c = 0$, where $a > 0$ and $c \neq 0$.
- Sets of ordered pairs should include between 3–5 pairs.
- Nonlinear functions can include the forms $y = x^2$, $y = |x|$, and $y = \sqrt{x}$ where $x > 0$.
- Item difficulty can be adjusted via these example methods:
  - Functions may be represented as tables or equations rather than graphs.

TM6
Stimulus: The student is presented with linear and nonlinear functions represented in different ways.

Example Stem: Several functions are represented in the table.

Determine whether each function is linear or nonlinear.

Function	Linear	Nonlinear
$y = \dfrac{3}{4}x + 2$		
<table><tr><td>**x**</td><td>**y**</td></tr><tr><td>−2</td><td>5</td></tr><tr><td>−1</td><td>9</td></tr><tr><td>0</td><td>13</td></tr><tr><td>1</td><td>17</td></tr><tr><td>2</td><td>21</td></tr></table>		
$\{(2, 2), (1, 2), (0,−2), (−1, −2)\}$		

Rubric: (1 point) The student selects the correct box to identify whether the functions are linear or nonlinear (e.g., L, N, L, N).

Response Type: Matching Tables