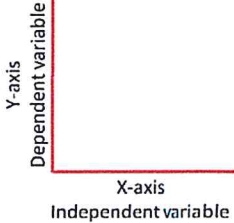
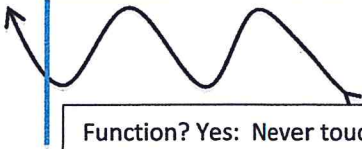
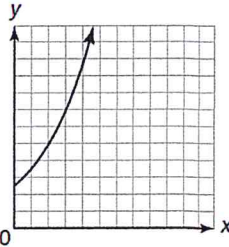
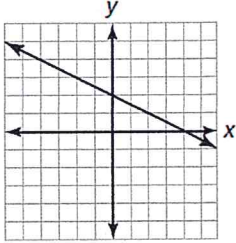
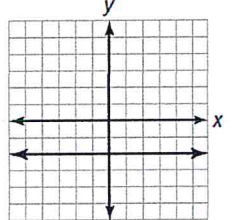
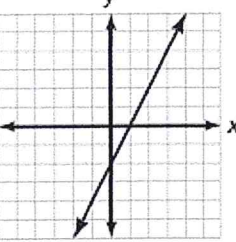
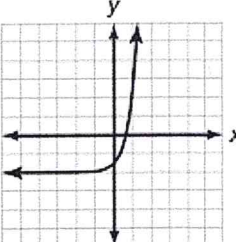
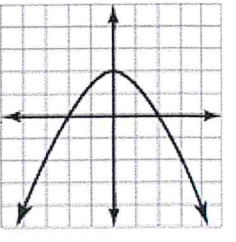
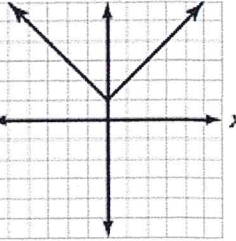
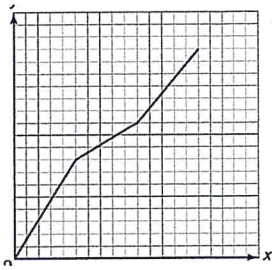
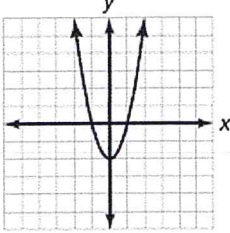
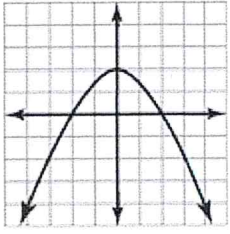
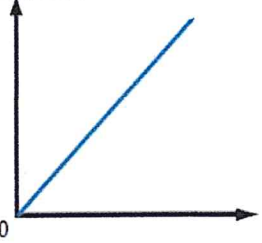
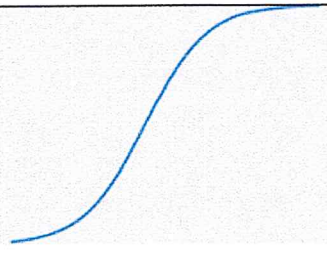
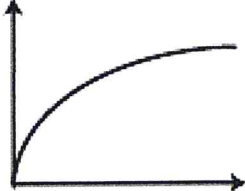
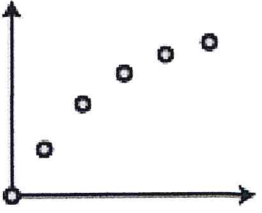


Recognizing Algebraic and Graphical Representations of Functions

Vocabulary	Definition or Equation	Example or Diagram																
1. Independent Variable	Can stand alone.																	
2. Dependent Variable	"Depends" on the independent variable, or changes based on the independent variable.	<p>Independent variable → Dependent variable →</p> <table border="1" data-bbox="1073 611 1484 921"> <thead> <tr> <th>Time (s)</th> <th>Water temperature (°C)</th> </tr> </thead> <tbody> <tr><td>0</td><td>15</td></tr> <tr><td>10</td><td>16</td></tr> <tr><td>20</td><td>18</td></tr> <tr><td>30</td><td>22</td></tr> <tr><td>40</td><td>28</td></tr> <tr><td>50</td><td>32</td></tr> <tr><td>60</td><td>37</td></tr> </tbody> </table>	Time (s)	Water temperature (°C)	0	15	10	16	20	18	30	22	40	28	50	32	60	37
Time (s)	Water temperature (°C)																	
0	15																	
10	16																	
20	18																	
30	22																	
40	28																	
50	32																	
60	37																	
3. Function	A relation between a given set of elements such that for each input value there exists <u>exactly one</u> output value.	<p>(3, 5) (4, 4), (1, 0) (8, 4)</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">No repeating "x" values.</div>																
4. Vertical Line Test	A visual method used to determine if a relation is a function when its represented as a graph.	 <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">Function? Yes: Never touches graph more than once.</div>																
5. Domain	The inputs (or x-values) of a relation.	<p>(3, 5) (4, 4), (1, 0) (8, 4)</p> <p>Domain: 1, 3, 4, 8</p>																
6. Range	The outputs (or y-values) of a relation.	<p>(3, 5) (4, 4), (1, 0) (8, 4)</p> <p>Range: 0, 4, 5</p>																
7. Increasing Function	As x gets bigger, y gets bigger.																	

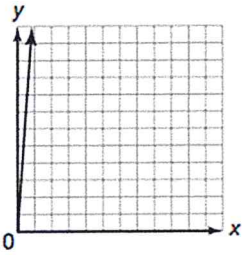
<p>8. Decreasing Function</p>	<p>As x gets bigger, y gets smaller.</p>	
<p>9. Constant Function</p>	<p>As x gets bigger, y stays the same.</p>	
<p>10. Function Family</p>	<p>How we "group" functions.</p>	<p>Linear Exponential Quadratic Absolute Value Piecewise</p>
<p>11. Linear Function</p>	<p>$y = mx + b$ or $f(x) = mx + b$</p>	
<p>12. Exponential Function</p>	<p>$f(x) = b^x$</p>	
<p>13. Quadratic Function</p>	<p>$f(x) = -x^2$ $f(x) = x^2$</p>	
<p>14. Linear Absolute Value Function</p>	<p>$f(x) = x$ $f(x) = - x$</p>	

<p>15. Linear Piecewise Function</p>	$f(x) = \begin{cases} 2x - 1, & \text{if } x \leq 1 \\ 3x + 1, & \text{if } x > 1 \end{cases}$	
<p>16. Absolute Minimum</p>	<p>The "lowest" point on a graph.</p>	
<p>17. Absolute Maximum</p>	<p>The "highest" point on a graph.</p>	
<p>18. Constant Rate of Change</p>	<p>Same "steepness" all the time.</p>	
<p>19. Variable Rate of Change</p>	<p>Steepness (or slope) changes.</p>	
<p>20. Continuous Function</p>	<p>Contains all values within a range. A graph with no breaks in it.</p>	
<p>21. Discrete Function</p>	<p>Only certain values. A graph of isolated points.</p>	

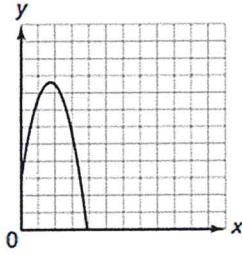
Choose the graph that best models each scenario.

22. Marcus is at the top of an observation tower. He drops an action figure with a parachute attached and watches it descend to the ground.

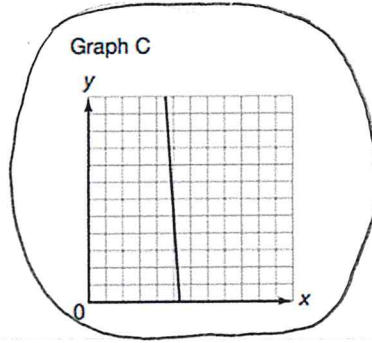
Graph A



Graph B

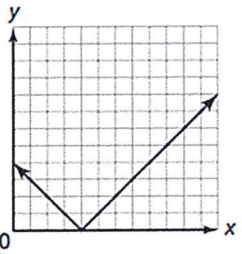


Graph C

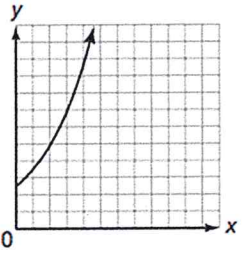


23. Janelle holds a raffle to raise money for a children's hospital. Participants who enter the raffle guess the number of peanuts in a jar. Janelle records the number of peanuts each participant guesses and the number of peanuts their guess is off by.

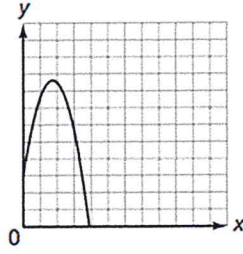
Graph A



Graph B

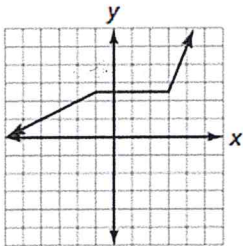


Graph C



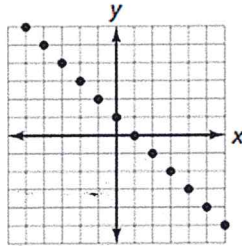
Determine whether each graph is discrete or continuous.

24.



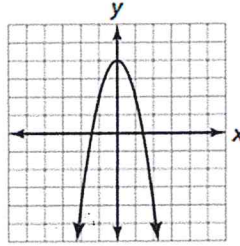
Continuous

25.



Discrete

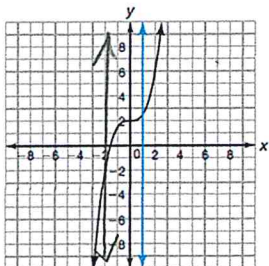
26.



Continuous

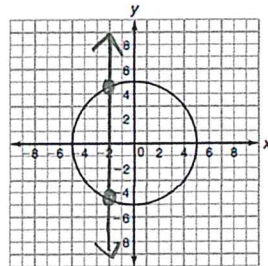
Determine if each graph represents a function by using the Vertical Line Test.

27.



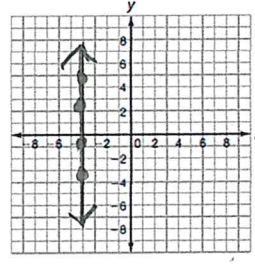
Function

28.



Not a
Function

29.



Not a
Function