


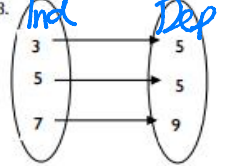
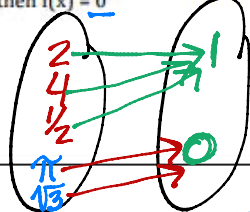
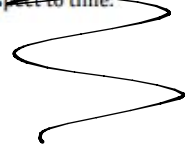
3.7 To Function or Not to Function

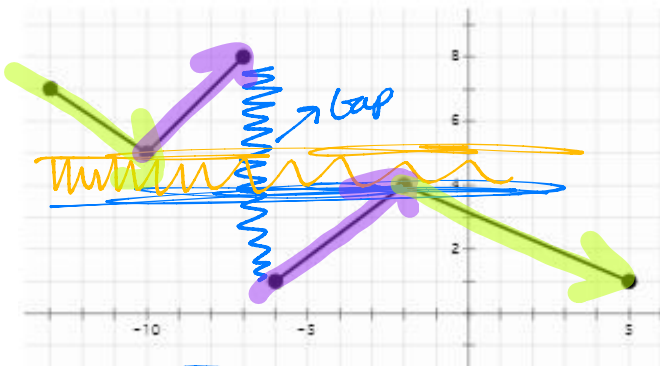
A Practice Understanding Task



Independent – x values (DOMAIN)
 Dependent – y values (RANGE)

Identify the two variables for each situation and determine which is independent and which is dependent. Then, determine if the relationship is a function and justify your reasoning.

<p>1. A person's name versus their social security number.</p> <p>Indep - name Dep - SS# No → one name has multiple outputs</p>	<p>2. A person's social security number versus their name.</p> <p>Indep - SS# dep - name Func → one SS# to one name</p>	<p>3. The cost of gas versus the amount of gas pumped.</p> <p>Indep - cost Dep - Amt pumped Func - cost goes one Amt pumped</p>	<p>10. The size of the radius of a circle dependent on the area.</p> <p>IND - Area Dep - radius Func - Area only has 1 radius</p>	<p>11. Students letter grade dependent on the percent earned.</p> <p>Ind - % earned Dep - Letter Grade 92 → A Func - Each % has a specific letter.</p>										
<p>4. $\{(3,6), (4,10), (8,12)\}$</p> <p>Ind - 3, 4, 8 Dep - 6, 10, 12 yes - no x's repeat</p>	<p>5. The temperature in degrees Fahrenheit with respect to the time of day.</p> <p>Ind - time (day) Dep - Temp Func - time has no repeats</p>	<p>6. Incl Dep</p> <table border="1" data-bbox="635 674 826 813"> <thead> <tr> <th>distance</th> <th>days</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>2</td> </tr> <tr> <td>10</td> <td>4</td> </tr> <tr> <td>6</td> <td>5</td> </tr> <tr> <td>9</td> <td>8</td> </tr> </tbody> </table> <p>No Func - 2 6's</p>	distance	days	6	2	10	4	6	5	9	8	<p>12. The length of fence needed with respect to the amount of rectangular area to be enclosed.</p> <p>26 ft $2 \times 22 = A$ $3 \times 30 = A$ 26 ft around 10 10 IND = length Func Dep = Area No → length of fence goes to multiple</p>	<p>13. The explicit formula for the recursive situation below: $f(1) = 3$ and $f(n+1) = f(n) + 4$</p> <p>3, 7, 11, 15, 19...</p> <p>Ind: term # Dep: Actual # Func - Don't repeat terms No → length of fence goes to multiple areas.</p>
distance	days													
6	2													
10	4													
6	5													
9	8													
<p>7. The area of a circle as it relates to the radius.</p> <p>Ind - radius Dep - Area</p>  <p>Func → only 1 radius goes to one area</p>	<p>8. Incl Dep</p>  <p>Func - no x repeats</p>	<p>9. The volume of water in a given cylinder is dependent on the height of water in cylinder.</p> <p>Ind - height Dep - Volume Func - 1 height 1 volume</p>	<p>14. If x is a rational number, then $f(x) = 1$</p> <p>If x is an irrational number, then $f(x) = 0$</p>  <p>Func - Rat goes with 1 and Irr goes with 0.</p>	<p>15. The national debt with respect to time.</p> 										



Continuous or discontinuous?

What is the domain (independent)?

$$[-3, -7] \cup [6, 5]$$

What is the range (dependent)?

$$[1, 4] \cup [5, 8]$$

What is the relative max?

$$(-2, 4)$$

What is the relative min?

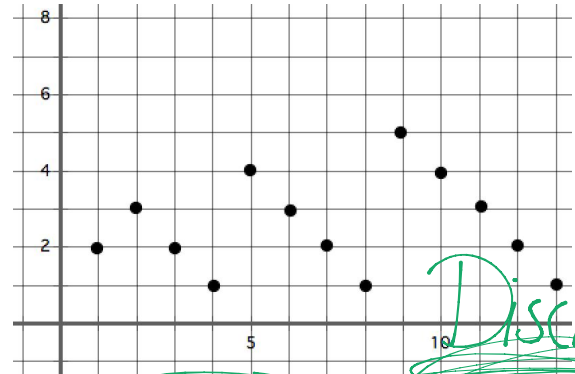
$$(-10, 5)$$

Increasing intervals:

$$(-10, -7) \quad (-6, -2)$$

Decreasing intervals:

$$(-3, -10) \quad (-2, 5)$$



Continuous or discontinuous?

What is the domain (independent)?

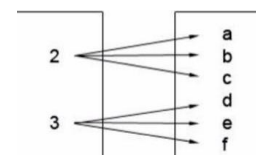
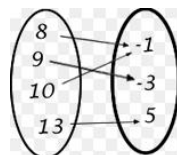
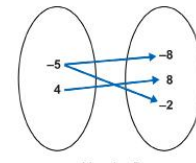
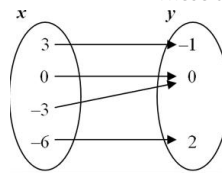
$$\{1, 2, 3, \dots, 13\}$$

What is the range (dependent)?

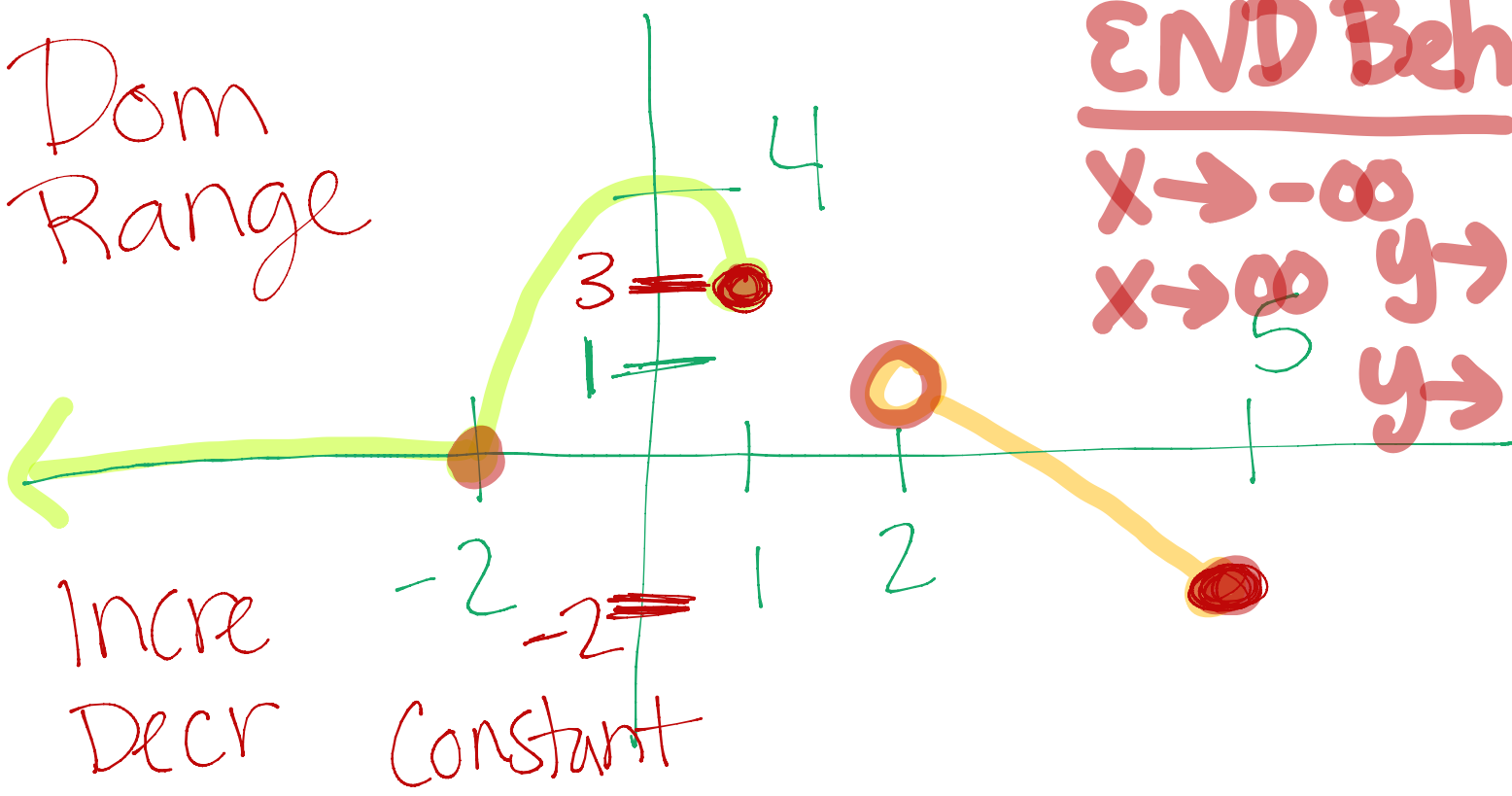
$$\{1, 2, 3, 4, 5\}$$

****Function or not a function?** Remember, if the X-VALUE repeats, it is **NOT A FUNCTION!**

These are called mappings – they map one value onto the other



Dom
Range



END Beh

$x \rightarrow -\infty$
 $x \rightarrow \infty$ $y \rightarrow$
 $y \rightarrow$

Incre
Decr

Constant