

Unit 2 (2.1) Basics of Function Notes

- Domain: _____
- Range: _____
- Domain/Range from a table, ordered pairs, or mapping diagram use a list with {
 - Domain (of a graph): From _____ to _____
 - Range (of a graph): From _____ to _____
 - Symbols:
 - For a graph ending in a ● use a [
 - For a graph ending in an arrow → use a (
- Function: each _____ has exactly 1 _____
 - For graphs use the _____ line test

Function Notation

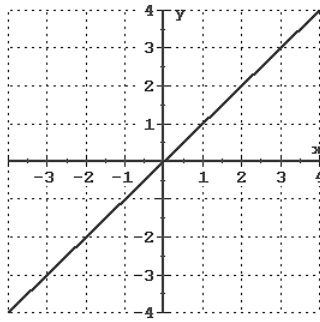
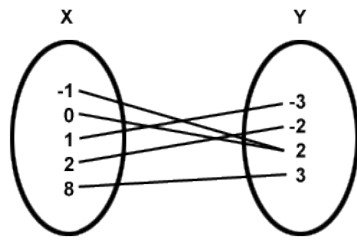
- $f(x), g(x), h(x) \dots$
 - is the same as _____
 - means that the relation is a _____
 - gives the equation a _____

- $f(4)$ means to plug _____ in for _____ and simplify →
$$\begin{aligned}f(x) &= 2x - 6 \\f(4) &= 2(4) - 6 \\f(4) &= 8 - 6 \\f(4) &= 2\end{aligned}$$

- $g(h(-2))$ means to substitute twice. →
$$\begin{aligned}h(x) &= -3x + 8 \\h(-2) &= -3(-2) + 8 \\h(-2) &= 6 + 8 \\h(-2) &= 14\end{aligned}$$
$$\begin{aligned}g(x) &= \frac{1}{2}x - 5 \\g(14) &= \frac{1}{2}(14) - 5 \\g(14) &= 7 - 5 \\g(14) &= 2\end{aligned}$$

*Start on the inside, work your way out

Functions



x	y
-2	-2
-1	2
0	6
1	10
2	14

Domain: _____

Domain: _____

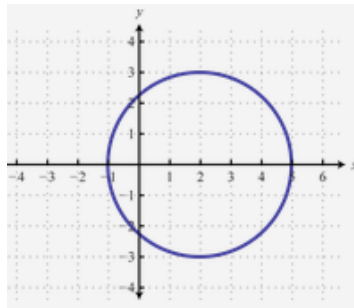
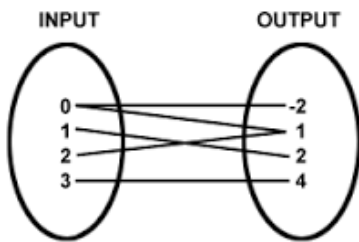
Domain: _____

Range: _____

Range: _____

Range: _____

Not functions



X	Y
1	2
2	4
1	5
3	8
4	4
5	10

Domain: _____

Domain: _____

Domain: _____

Range: _____

Range: _____

Range: _____

Determine whether each relation is a function and then state the domain and range.

<p>Function? Y or N</p> <div style="text-align: center;"> <p>Domain Range</p> </div> <p>Domain: _____</p> <p>Range: _____</p>	<p>Function? Y or N</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px;">x</th> <th style="padding: 2px;">y</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">-2</td> <td style="padding: 2px;">-1</td> </tr> <tr> <td style="padding: 2px;">-2</td> <td style="padding: 2px;">1</td> </tr> <tr> <td style="padding: 2px;">-1</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="padding: 2px;">1</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="padding: 2px;">2</td> <td style="padding: 2px;">1</td> </tr> </tbody> </table> <p>Domain: _____</p> <p>Range: _____</p>	x	y	-2	-1	-2	1	-1	0	1	0	2	1
x	y												
-2	-1												
-2	1												
-1	0												
1	0												
2	1												
<p style="text-align: center;">$\{(-3, 4), (-2, 4), (-1, -1), (3, -1)\}$</p> <p>Function? Y or N</p> <p>Domain: _____</p> <p>Range: _____</p>	<p>Function? Y or N</p> <p>Domain: _____</p> <p>Range: _____</p>												
<p>Function? Y or N</p> <p>Domain: _____</p> <p>Range: _____</p>	<p>Function? Y or N</p> <p>Domain: _____</p> <p>Range: _____</p>												

Find the value for each if $f(x) = x^2 - 9x + 14$ and $g(x) = -5x + 6$

1. $f(-3)$

2. $g(-29)$

3. $f(g(2))$

4. $g(f(8))$