Notes 2-1

Sec 1 H **Functions Introduction** **Unit 2**

Vocabulary:

- Function: when 1 input has exactly 1 output
- Domain: x-values or Input values
  { small # → Big # ; no repeats }
- Range: y-values or Output values
  { small # → Big # ; no repeats }
- Mapping Diagram:
  Domain mapped to Range using arrows & no repeats

Determine if the following relationships are functions and then state the domain and range.

Ex 1: $\{(3,6), (4,10), (8,12), (2,6)\}$

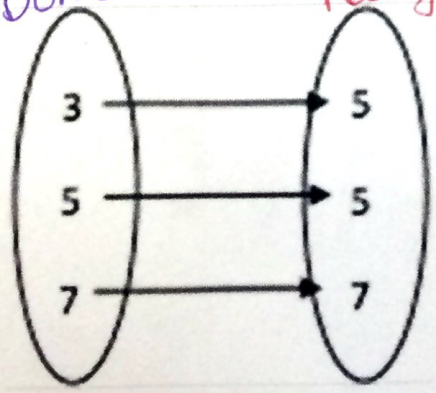
D: {2, 3, 4, 8} R: {6, 10, 12} Yes a function

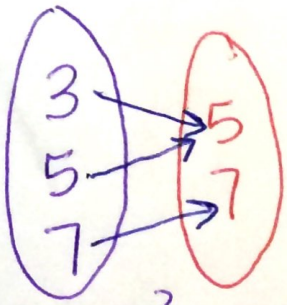
Ex. 2:

distance (x)	days (y)
6	2
10	4
6	5
9	8

D: {6, 9, 10}
R: {2, 4, 5, 8}
Not a function

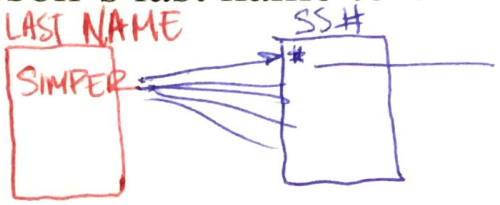
Ex. 3:





D: {3, 5, 7}
R: {5, 7}
Yes, a function

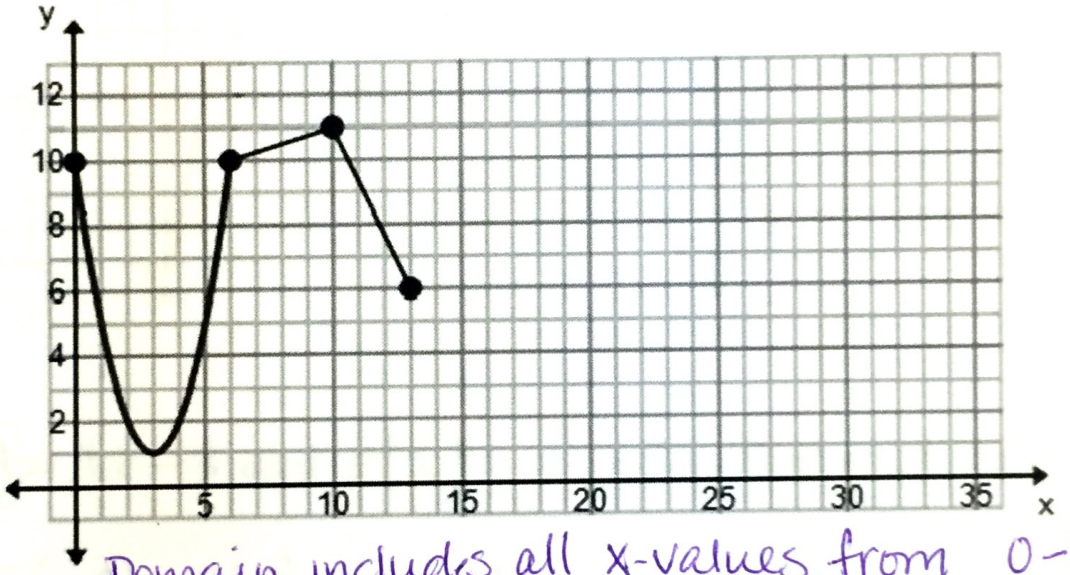
Ex. 4: A person's last name to Social Security number.



Not a function

Use a sentence to describe the domain and range of each function.

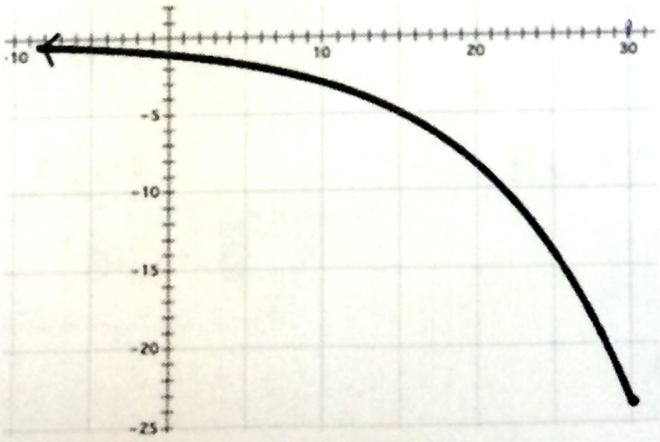
Ex. 5:



Domain includes all x-values from 0-13.

Range includes all y-values from 1-11

Ex. 6:



Domain includes all x-values smaller than 30 & includes 30.

Range includes all y-values @ -24 or bigger

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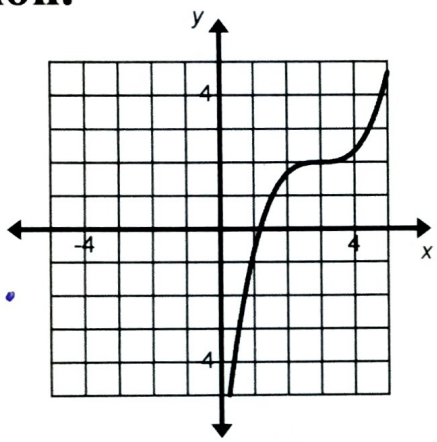
Vertical Line Test:

it is not a function if a vertical line hits the relation more than ONCE.

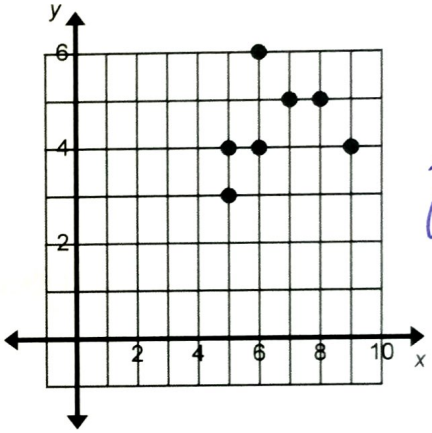
Use the vertical line test to determine if the relation is a function.

Ex. 7:



Yes a func.

Ex. 8:



No. doesn't pass VLT

f of x

If $f(x) = 3x - 8$ and $g(x) = x^2 + 5x$, find each value.

Ex. 9: $f(-4)$ → $3(-4) - 8$

$-12 - 8$

-20

$(-4, -20)$ $f(-4) = -20$

Ex. 10: $g(-3)$ = $x^2 + 5x$

$(-3)^2 + 5(-3)$

$9 + -15 = -6$

$g(-3) = -6$

Ex. 11: $f(c)$

$f(c) = 3c - 8$

Ex. 12: $f(2) + g(3)$

$3(2) - 8 + (3)^2 + 5(3)$

$6 - 8 + 9 + 15$

$-2 + 9$

$7 + 15 = 22$

$f(2) + g(3) = 22$

Ex. 13: $7 + g(-2) = 1$

$7 + (-2)^2 + 5(-2)$

$7 + 4 - 10 = 11 - 10 = 1$

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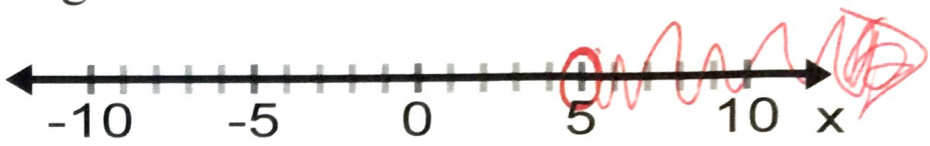
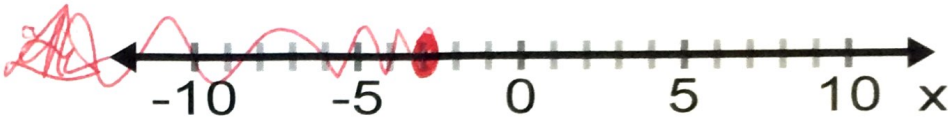
> open < ≥ ≤ closed

Graph the inequality on the given number line.

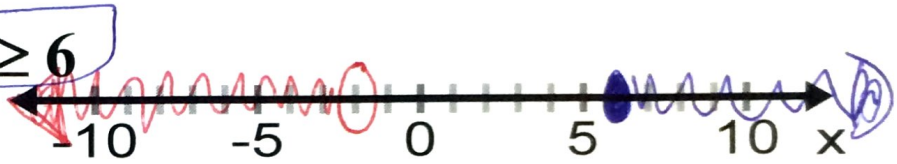
Ex. 14: $x > 5$



Ex. 15: $x \leq -3$



Ex. 16: $x < -2$ or $x \geq 6$



AND

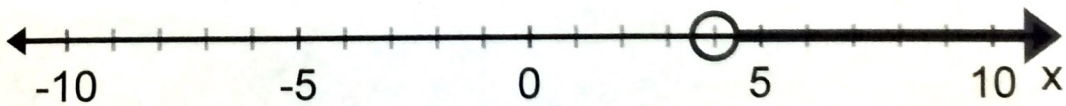
Ex. 17: $2 \leq x < 8$

Write the inequality for the graph.

Ex. 16:

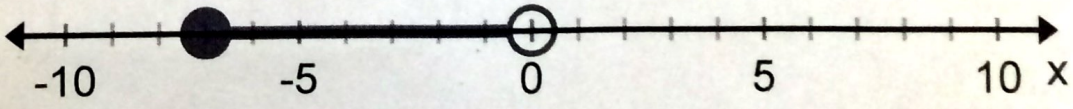
$x \leq 2$

Ex. 17:



$x > 4$

Ex. 18:



$-7 \leq x < 0$