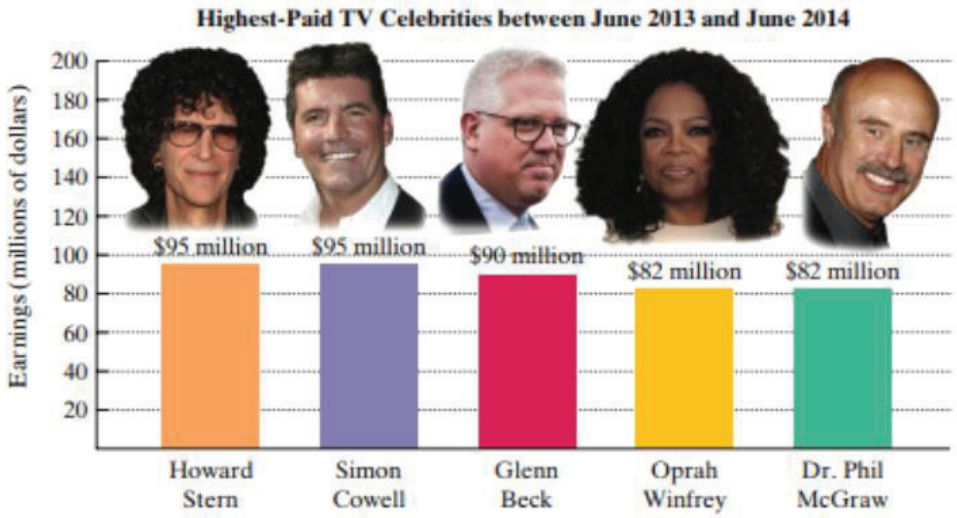
2.1. Basics of Functions and their graphs. (Part I)

Thursday, January 23, 2020 9:37 AM

Obj 1: Definition of a Relation and to find the domain and the range of a relation.

Definition of a Relation:

A **Relation** is a set of ordered pairs.



$R1 = \{ (Stern, 95), (Cowell, 95), (Beck, 90), (Winfrey, 82), (McGraw, 82) \}$

→ This is an example of a relation.

$R2 = \{ (95, Stern), (95, Cowell), (90, Beck), (82, Winfrey), (82, McGraw) \}$

→ Another example of a relation. ($R2 \neq R1$)

The **Domain** of a relation is the set of all the first components of the ordered pairs in the relation.

E.g. For the first relation R1:

Domain = {Stern, Cowell, Beck, Winfrey, McGraw}

For the second relation R2:

Domain = {95, 90, 82}

The **Range** of a relation is the set of all the second components of the ordered pairs in the relation.

E.g. For R1: Range = {95, 90, 82}

For R2: Range = {Stern, Cowell, Beck, Winfrey, McGraw}

Another example of a relation:

Buy ticket(s) for an event. A ticket costs $5. You also have to pay a flat rate of $2 regardless of how many tickets you purchase.

# of tickets you buy	cost
1	$7
2	$12
3	$17
4	$22
5	$27

Relation R3 = {(1,7), (2,12), (3,17), (4,22), (5,27)}

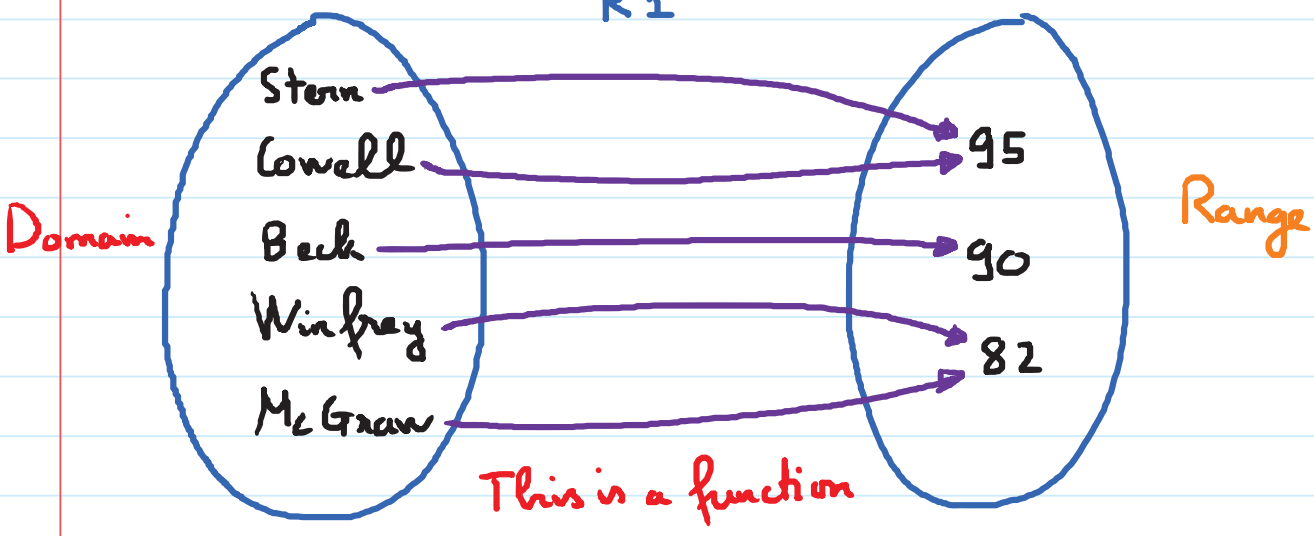
Domain = {1, 2, 3, 4, 5}

Range = {7, 12, 17, 22, 27}

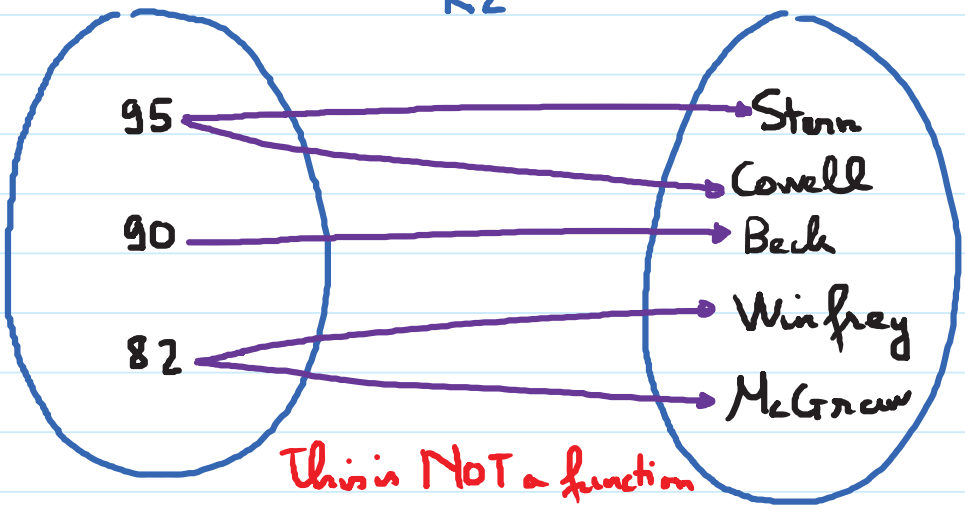
Obj 2: Definition of a function and Determine whether a relation is a function.

Mapping Diagrams:

R1



R2

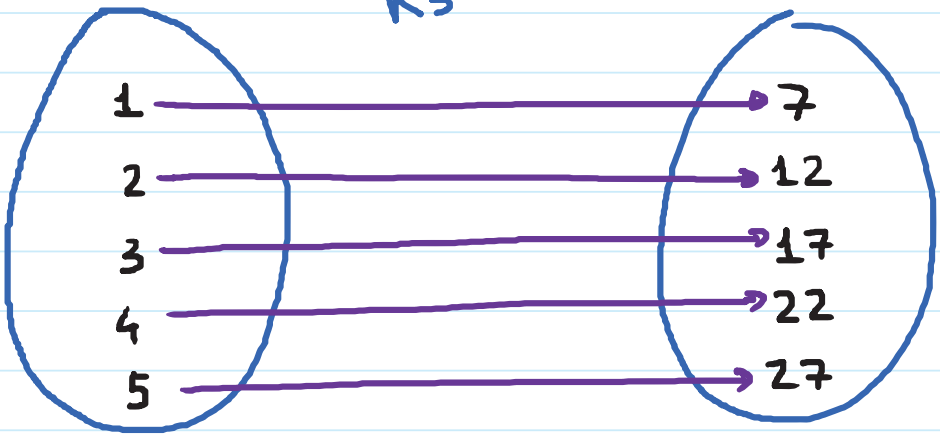


Domain

Range

This is NOT a function

R3



Domain

Range

This is a function