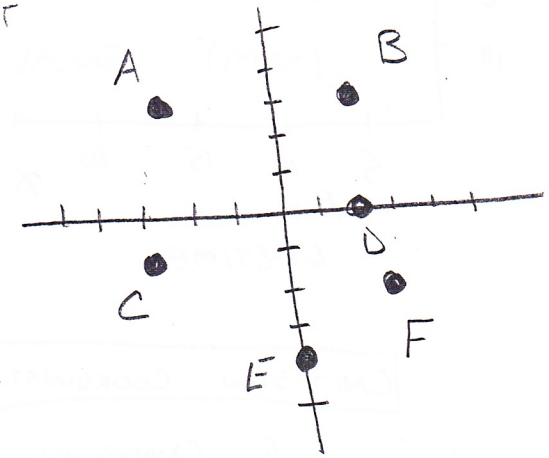
10.5.09 TOPICS

2.1 RELATIONS & FUNCTIONS

GOAL: ANALYZING & GRAPHING RELATIONS

OPENER: IDENTIFY POINTS ON COORDINATE PLANE

WRITE ORDER PAIR FOR EACH POINT



1) A (-3, 3)
2) B (2, 3)
3) C (-3, -1)
4) D (2, 0)
5) E (0, -4)
6) F (3, -2)

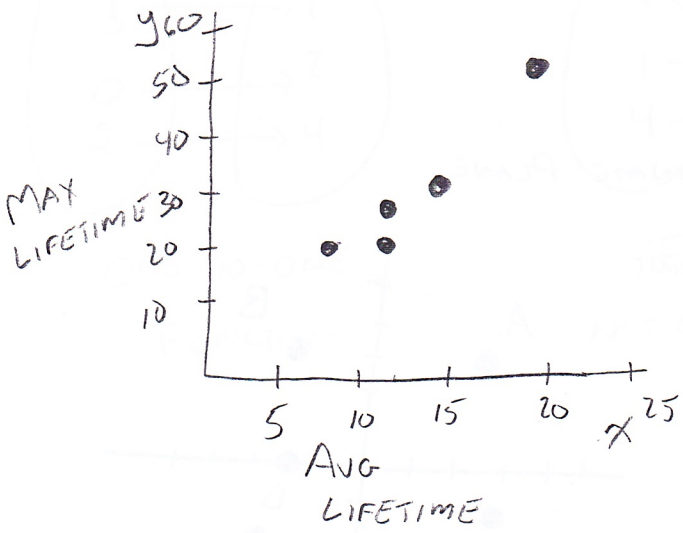
VARIOUS WAYS TO REPRESENT DATA / RELATIONSHIPS

ANIMAL	AVG. LIFETIME (YEARS)	MAXIMUM LIFETIME (YEARS)
CAT	12	28
COW	15	30
DEER	8	20
DOG	12	20
HORSE	20	50

(12, 28)
AVG LIFETIME, MAX LIFETIME

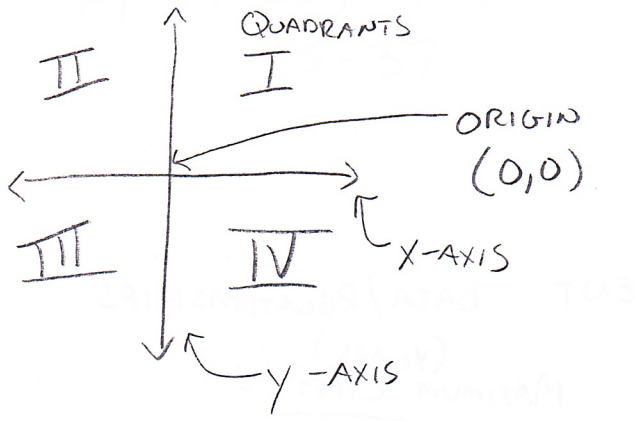
GRAPH RELATIONS

(x , y)
(AVG , MAX)



*EACH POINT NAMED BY EXACTLY ONE ORDERED PAIR

CARTESIAN COORDINATE PLANE



RELATIONS - SET OF ORDERED PAIRS MADE UP OF THE DOMAIN & RANGE

DOMAIN - THE SET OF "x" VALUES (AVG.)

RANGE - THE SET OF "y" VALUES (MAX)

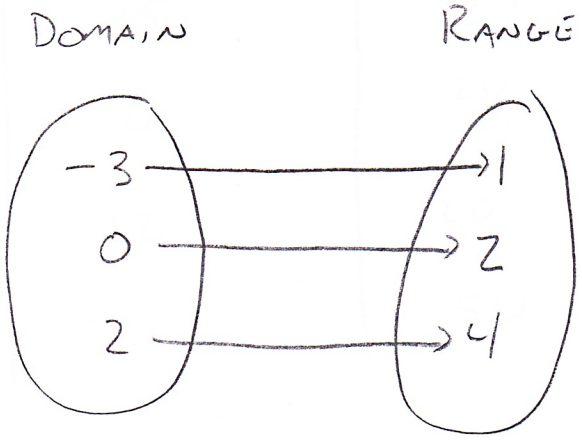
EX

DOMAIN IS $\{12, 15, 8, 12, 20\}$

RANGE IS $\{28, 30, 20, 20, 50\}$

FUNCTION - A SPECIAL RELATION WHERE EACH ELEMENT / # IN DOMAIN IS PAIRED WITH EXACTLY ONE ELEMENT / # IN THE RANGE

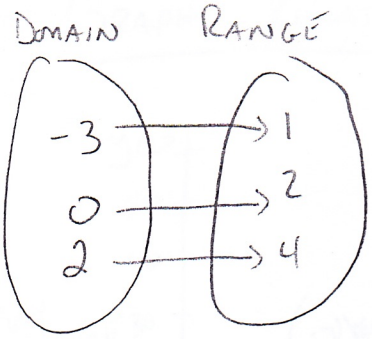
SHOWN BY "MAPPING" **Ex** $\{(-3,1),(0,2),(2,4)\}$



EACH # IN DOMAIN IS PAIRED W/ ONE # IN RANGE

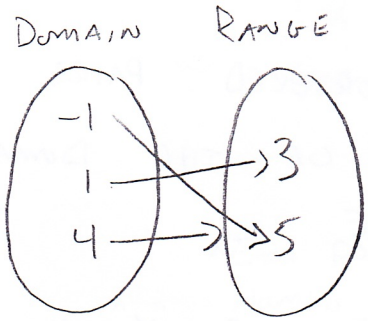
CALLED ONE-TO-ONE FUNCTION

$\{(-3,1),(0,2),(2,4)\}$



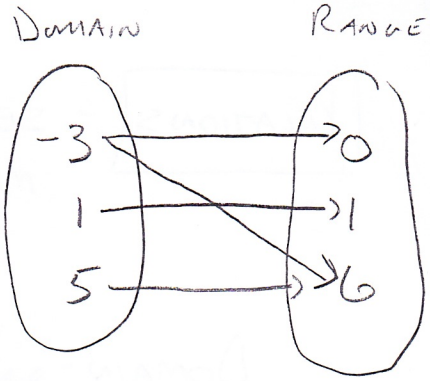
ONE-TO-ONE FUNCTION

$\{(-1,5)(1,3)(4,5)\}$



FUNCTION NOT ONE-TO-ONE

$\{(5,6),(-3,0)(1,1)(-3,6)\}$



NOT A FUNCTION

WHY NOT?

HW: Pg 60-61

17-20, 23, 25, 27

35-37