MATH 125 College Algebra Name_____

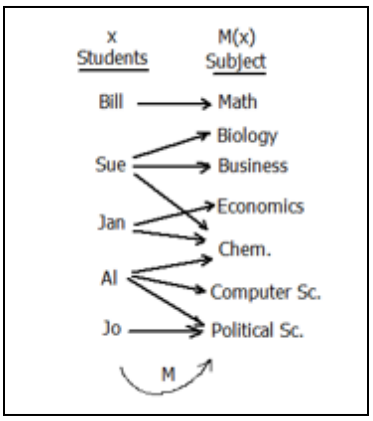
Relation: A set of_____ **Function:** _____

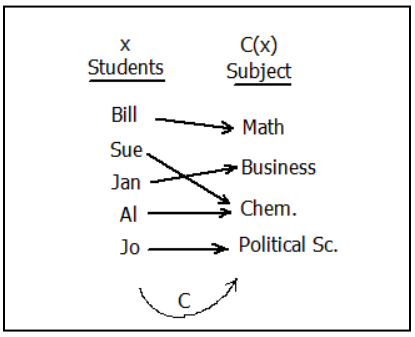
Domain of a _____ is the set of _____that is made up of all the _____ components of the ordered pairs.

Range of a _____ is the set of _____that is made up of all the _____ components of the ordered pairs.

Domain: _____ variable, _____ Variable, _____coordinate, _____ coordinate

Range: _____ variable, _____ Variable, _____ coordinate, _____ coordinate





M: connects a student to the department for which the student has a morning class.

C: connects a student to the department for which the student has their 1st class of the morning.

M: $\{(\text{Bill,Math}), (\text{Sue,Chem.}), (\text{Sue,Bio.}), (\text{Sue,Bus.}), (\text{Jan,Econ.}), (\text{Jan,Chem.}), (\text{Al,Chem.}), (\text{Al, Comp. Sc.}), (\text{Al, Pol.Sc.}), (\text{Jo,Pol.Sc.})\}$

C: $\{(\text{Bill,Math}), (\text{Sue,Chem.}), (\text{Jan,Business}), (\text{Al,Chem.}), (\text{Jo,Political Sc.})\}$

Domain of **M** and **C** : _____

Range of **M**: _____

Range of **C**: _____

Both **M** and **C** are relations, however only _____ is a function.

Mathematical Functions are often given by a rule: $f(x)$ is read f "of " x

EX) $f(x)=5x-2$

What output corresponds to an input of 8?

$x=8$ determine $f(8)$.

What input corresponds to an output of 8?

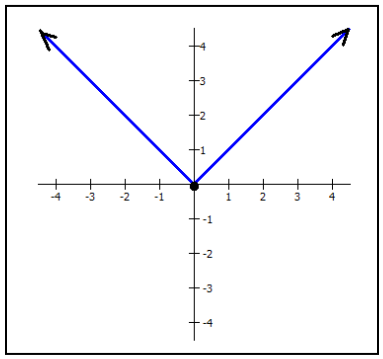
$f(x)=8$, determine the value of x

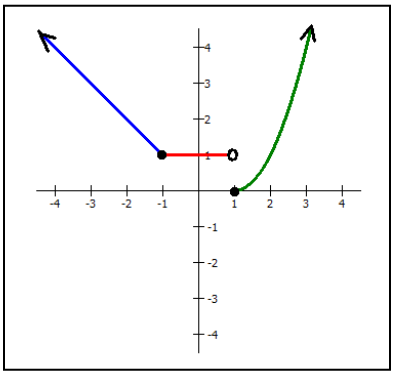
What is the output of f if the input is $w+2$?

Domain_____ Range_____

Vertical Line Test_____

$f(x) = |x| \quad \Rightarrow f(x) = \begin{cases} -x, & x < 0 \\ x, & x \geq 0 \end{cases}$





$f(-2)$ =_____ $f(x) = 3$_____

Domain_____ Range_____

$$g(x) = \begin{cases} -x, & x \leq -1 \\ 1, & -1 < x < 1 \\ (x-1)^2, & x \geq 1 \end{cases}$$

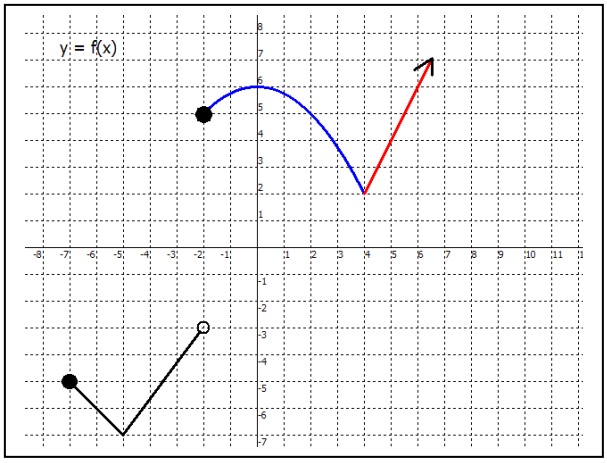
$f(1)$ =_____ $f(x) = 1$_____

Domain_____ Range_____

**Unless stipulated the domain of functions given by a rule will be all possible real numbers for which the function is defined.

$g(x) = \dfrac{12}{x-5}$, Domain in set notation_____ interval notation_____

$f(x) = \sqrt{x+4}$, Domain in set notation_____ interval notation_____



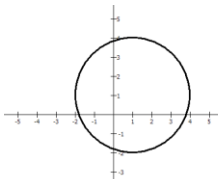
State the Domain *State the Range*

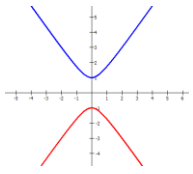
$f(0)$ =_____ $f(-2)$ =_____ $f(5)$ =_____

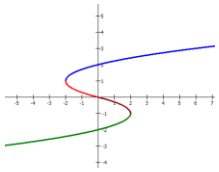
What is x if $g(x) = 0$?

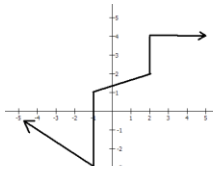
What is x if $g(x) = 6$?

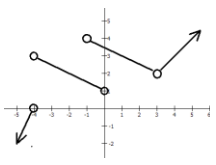
Examples of Relations that are not Functions:











x-intercept_____

y-intercept_____