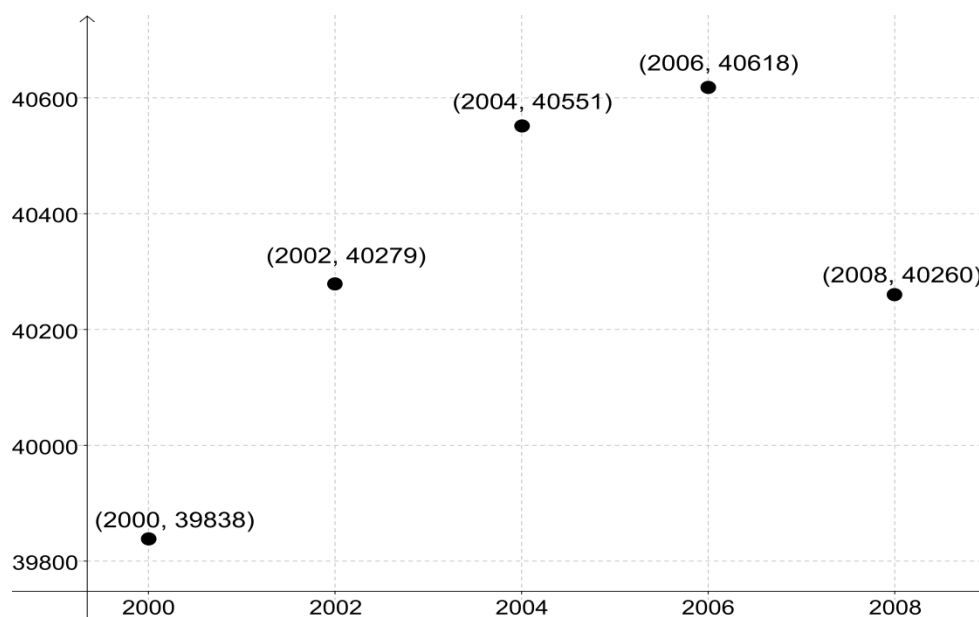Definition: A _function_ is a mathematical rule which assigns to each input value an output value.

Example: The following table gives the city of Holyoke's population from 2000 to 2008

Year	2000	2002	2004	2006	2008
Pop.	39838	40279	40551	40618	40260

Domain =

Range =

Example: Suppose that gas costs $3.55 per gallon. The cost to fill our gas tank is a function of how many gallons are needed.

How much does it cost to purchase 10 gallons of gas?

Definition: A function $y = f(x)$ is an <u>increasing</u> function if **y increases** as x increases.

Definition: A function $y = f(x)$ is a <u>decreasing</u> function if **y decreases** as x increases.