Functions

Definition: A <u>function</u> is a mathematical rule which assigns to each input value an output value.

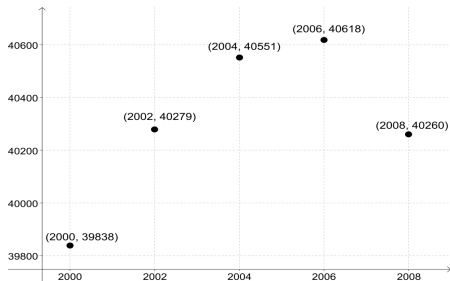**Example:** The following table gives the city of Holyoke's population from 2000 to 2008.

Year	2000	2002	2004	2006	2008
Population	39838	40279	40551	40618	40260

Domain =

Range =

Functions

Year	2000	2002	2004	2006	2008
Population	39838	40279	40551	40618	40260

Functions

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?

Functions

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

Definition: A function $y = f(x)$ is a <u>decreasing</u> function if