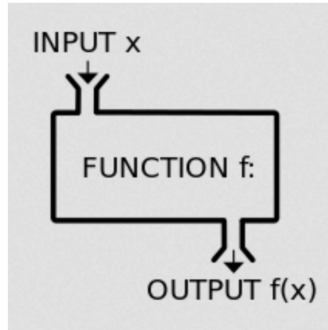


Unit 4: Piecewise Functions

What is a function?

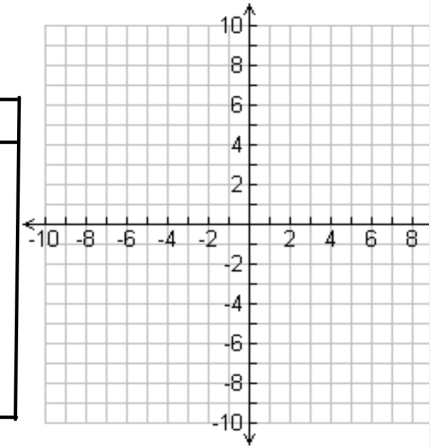
A *function* relates an input to an output.



Page 1

Ex. 1 $f(x) = 2x + 3$

x	$2x + 3$	f(x)



Page 2

Ex. 2 $f(x) = \begin{cases} x - 2 & x < 0 \\ x^2 + 2 & x \geq 0 \end{cases}$

Find $f(-2)$, $f(0)$ and $f(2)$

Page 3

Ex. 3 $f(x) = \begin{cases} -x^2 + 4x - 1 & x \leq 2 \\ -2x + 7 & x > 2 \end{cases}$

Find $f(2) + f(0)$

Page 4

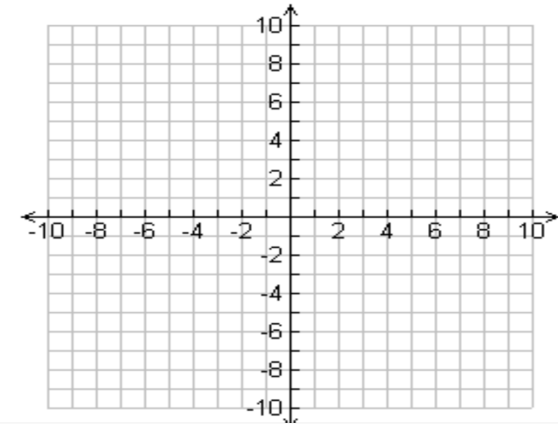
Ex. 4 Given the following piecewise function, determine the value of $g(-4)$.

$$g(x) = \begin{cases} 10^x & \text{if } x < -4 \\ x^4 + x^2 + x - 3 & \text{if } x \geq 4 \end{cases}$$

Page 5

x. 5 Graph the following piecewise defined function

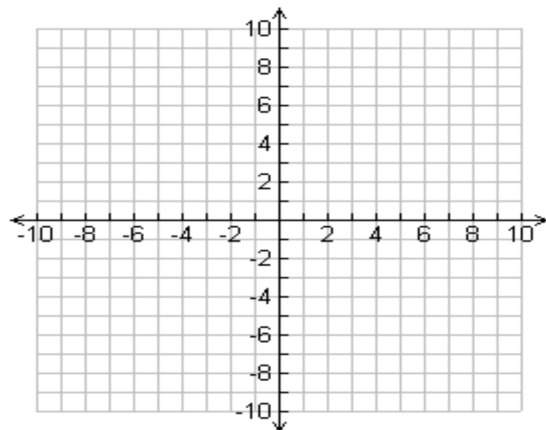
$$f(x) = \begin{cases} x^2 & \text{if } x < 2 \\ 6 & \text{if } x = 2 \\ 10 - x & \text{if } x > 2 \text{ and } x \leq 6 \end{cases}$$



Page 6

x. 6 Graph the following piecewise defined function

$$h(x) = \begin{cases} x^2 & \text{if } x \leq -1 \\ 4x + 5 & \text{if } -1 < x < 1 \\ -x^2 + 10 & \text{if } x \geq 1 \end{cases}$$



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