

A vibrant, cartoon-style illustration of an underwater scene. Ariel, with her long red hair and green mermaid tail, is the central figure. She is surrounded by various colorful fish, including Flounder, and bubbles. The background is a soft, light blue gradient. The text is overlaid on this scene.

Precalculus A

Chapter 1

Piecewise Functions

Hw: Piecewise Functions Worksheet, #3, 5, 6

B. Paulson

Objectives:

SWBAT determine what type of discontinuity a graph has.

SWBAT graph and write piecewise functions.

B. Paulson

Piecewise Functions:

1. $f(x) = \begin{cases} x+5 & x < -2 \\ x^2+2x+3 & x \geq -2 \end{cases}$

x	y
-2	3
-3	2

$(-2)^2 + 2(-2) + 3$
 $(-1)^2 + 2(-1) + 3$
 $(0)^2 + 2(0) + 3$

Function? Yes or No

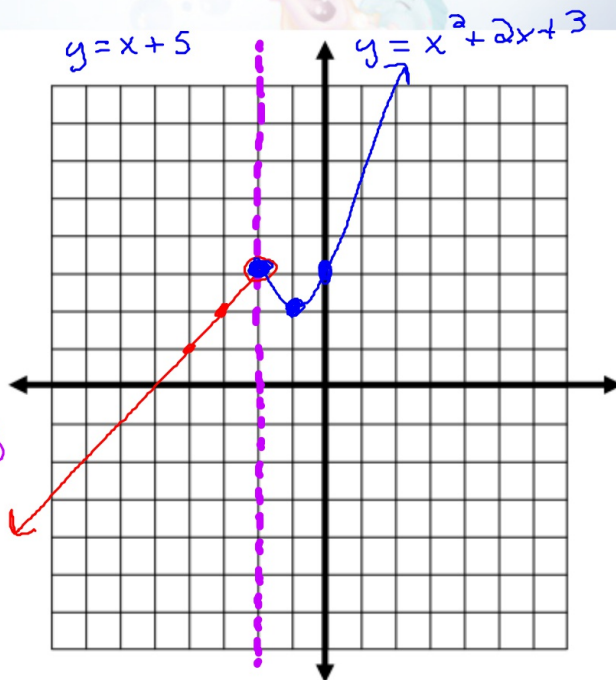
$f(3) = (3)^2 + 2(3) + 3 = 18$

$f(-4) = -4 + 5 = 1$

$f(-2) = (-2)^2 + 2(-2) + 3 = 3$

Domain: $(-\infty, \infty)$ or \mathbb{R}

Range: $(-\infty, \infty)$ or \mathbb{R}



B. Paulson

Piecewise Functions:

2. $f(x) = \begin{cases} 2x+1 & x \geq 1 \\ x^2+3 & x < 1 \end{cases}$

Function? Yes or No

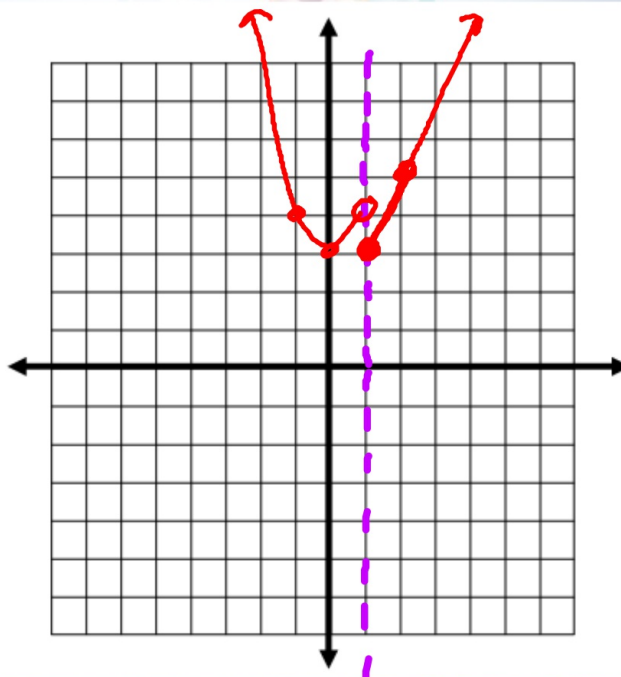
$f(-2) = 7$

$f(6) = 13$

$f(1) = 3$

Domain: $(-\infty, \infty)$

Range: $[3, \infty)$



B. Paulson

Piecewise Functions:

4.
$$f(x) = \begin{cases} x^2 - 1 & x \leq 0 \\ 2x - 1 & 0 < x \leq 5 \\ 3 & x > 5 \end{cases}$$

x	y
0	-1
-1	0
-2	3

x	y
0	-1
1	1
2	3

Function? Yes or No

$$f(-2) = (-2)^2 - 1 = 3$$

$$f(0) = (0)^2 - 1 = -1$$

$$f(5) = 2(5) - 1 = 9$$

Domain: $(-\infty, \infty)$

Range: $[-1, \infty)$

