

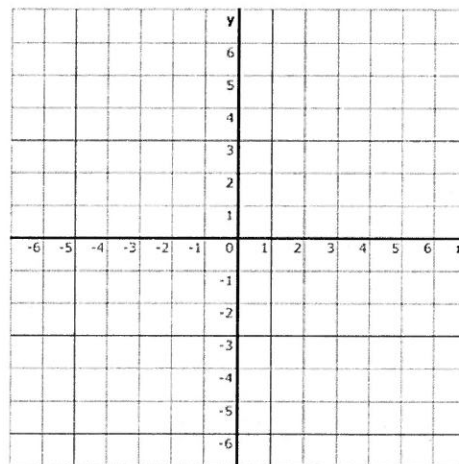
Name: \_\_\_\_\_ Per: \_\_\_\_\_ Date: \_\_\_\_\_  
 Serafino ▪ Precalculus S2

## 12R Piecewise & Rational Functions Review

1. Graph the function, stating all information requested.

$$f(x) = \begin{cases} x^2 - 4, & x \neq 3 \\ -5, & x = 3 \end{cases}$$

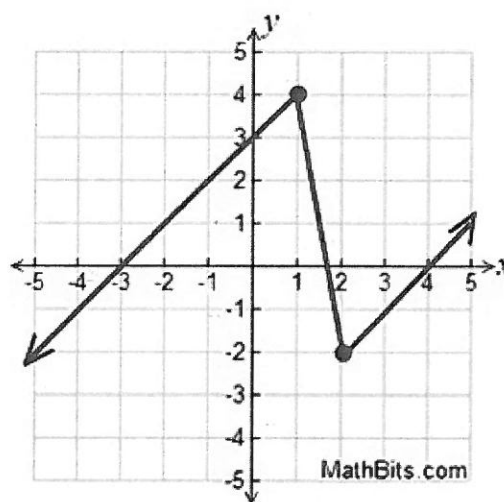
- Is this function continuous or discontinuous?
- What's the domain of this function?
- What's the end behavior of this function?



2. Write the equation of the function.

$$f(x) = \begin{cases} \end{cases}$$

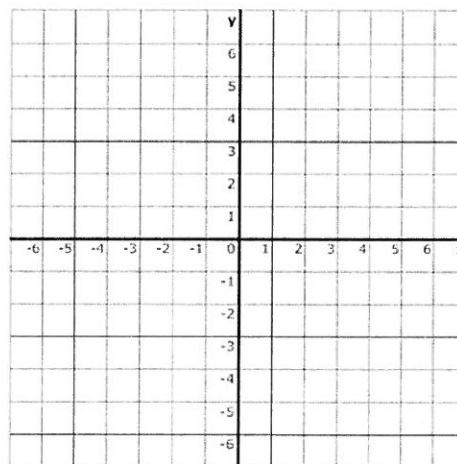
- Is this function continuous or discontinuous?
- What's the domain of this function?
- What's the end behavior of this function?



3. Graph the function, stating all information requested.

$$f(x) = \frac{6}{(x-2)^2}$$

- What's the domain of this function?
- What's the end behavior of this function?
- VA: \_\_\_\_\_ HA: \_\_\_\_\_  
 x-int: \_\_\_\_\_ y-int: \_\_\_\_\_



4. Write the equations of the rational functions with the following properties:

- a) A parabola with:  
 x-int: (2, 0) and (-6, 0)  
 y-int: (0, 9)  
 A hole where  $x = 1$

- b) Infinite discontinuity (VA) at  $x = 2$   
 Removable discontinuity at  $x = -1$   
 x-int: (0, 0) and (5, 0)  
 HA:  $y = 3$

5. $f(x) = \frac{x^2 - 25}{x^2 - 4x - 5}$	Factored & Simplified function:	
Domain:	Holes:	
VA(s):	HA:	
As $x \rightarrow -\infty$ ,	As $x \rightarrow \infty$ ,	
x-int(s):	y-int:	

6. Match the function with the graph using what you know about VAs and end behavior.

\_\_\_\_\_  $y = \frac{x^2 - 7}{x^2 + 2}$

\_\_\_\_\_  $y = \frac{x^3}{x^2 - 4}$

\_\_\_\_\_  $y = \frac{-x^3}{x^2 + 9}$

\_\_\_\_\_  $y = \frac{x^2 + 4x}{2x - 1}$

\_\_\_\_\_  $y = \frac{3}{x^3 - 27}$

\_\_\_\_\_  $y = \frac{-8}{x^2 - 4}$

