ALGEBRA- PRECALCULUS

Rational Functions
G.N.A.W.

Name _____
Date _____ Period _____

Graphically	Numerically
Graph $y = f(x)$ on the grid below.	

GRAPHIC
NUMERIC
ALGEBRAIC
WORDS

Rational Functions
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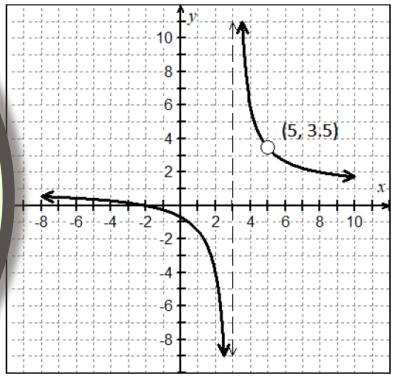
Graphically	Numerically
Use the graph of $y = f(x)$ below to complete the activity. 	Complete the table.

x	$f(x)$
-7	0.5
-2	
0	
1	
2	
3	
4	
5	undefined

Algebraically	Verbally
If $f(x) = \frac{x^2-3x-A}{\quad}$ find the values of A and B	1. What is the domain of the function?

GNAW on Rational Functions

The Rule of Four

Flamingo Math

Rational Functions

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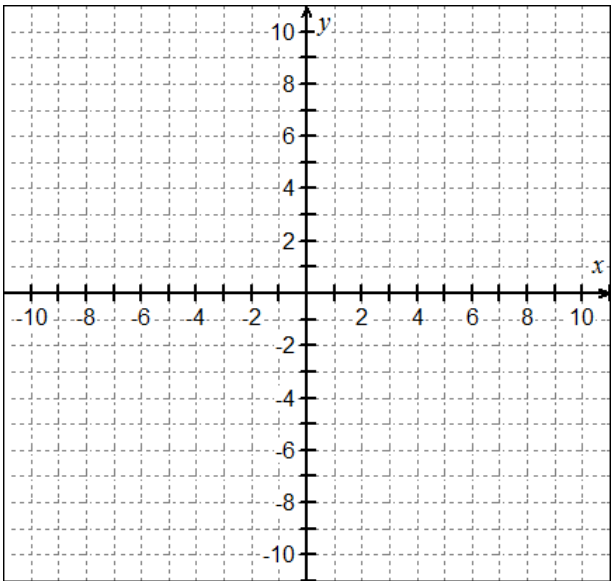
Graphically

Graph $y = f(x)$ on the grid below.



Numerically

Complete the table.

x	$f(x)$
-2	
-1	
0	
1	
2	
3	
4	
5	1

Algebraically

If $f(x) = \frac{2x - K}{x - 3}$, find the value of *K*.

Verbally

1. What is the domain of the function?
2. What is the range of the function?
3. For what value of *x* is the function undefined?
4. Write an equation for the horizontal asymptote.
5. State the coordinates for the *y*-intercept.
6. Name the *x*-intercept(s).

Rational Functions

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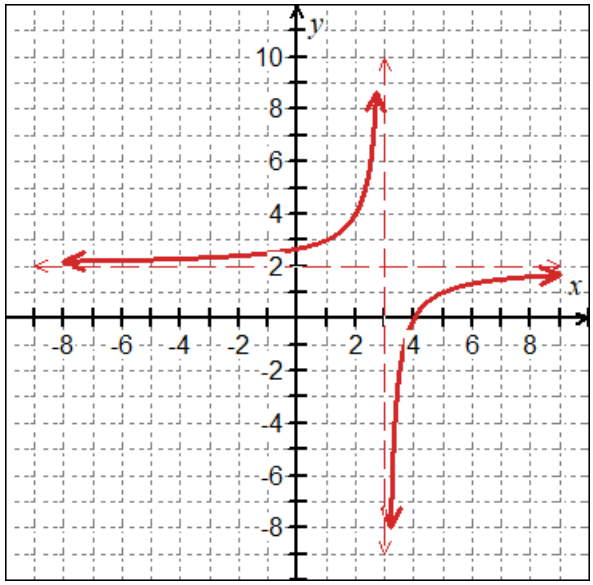
Graphically

Graph $y = f(x)$ on the grid below.

$$f(x) = \frac{2(x-4)}{(x-3)}$$



Numerically

Complete the table.

x	$f(x)$
-2	$\frac{12}{5}$
-1	$\frac{5}{2}$
0	$\frac{8}{3}$
1	3
2	4
3	undefined
4	0
5	1

Algebraically

If $f(x) = \frac{2x-K}{x-3}$, find the value of *K*.

$$(x, y) = (5,1)$$

$$1 = \frac{2(5) - K)}{(5-3)}$$

$$2 = 10 - K$$

$$K = 8$$

Verbally

1. What is the domain of the function?

   $(-\infty, 3) \cup (3, \infty)$

2. What is the range of the function?

   $(-\infty, 2) \cup (2, \infty)$

3. For what value of *x* is the function undefined?

   $x = 3$

4. Write an equation for the horizontal asymptote.

   $y = 2$

5. State the coordinates for the *y*-intercept.

   $\left(0, \frac{8}{3}\right)$

6. Name the *x*-intercept(s).

   $(4, 0)$

Rational Functions

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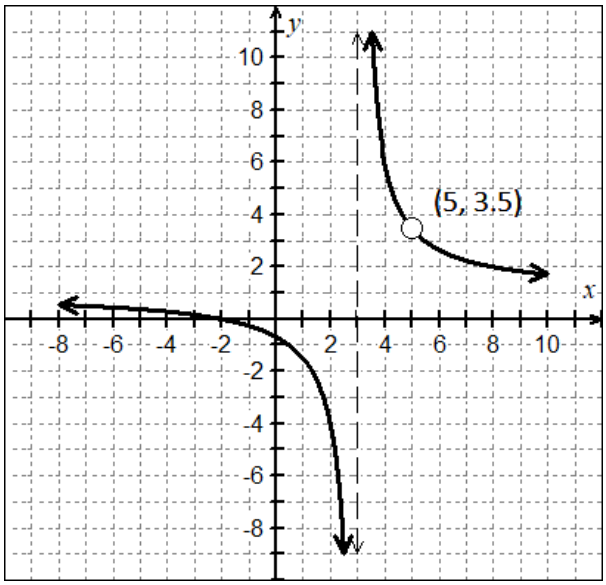
Graphically

Use the graph of $y = f(x)$ below to complete the activity.



Numerically

Complete the table.

x	$f(x)$
-7	0.5
-2	
0	
1	
2	
3	
4	
5	undefined

Algebraically

If $f(x) = \frac{x^2-3x-A}{x^2-8x+B}$, find the values of *A* and *B*.

Verbally

1. What is the domain of the function?
2. What is the range of the function?
3. For what value(s) of *x* is the function undefined?
4. Write an equation for the horizontal asymptote.
5. State the coordinates for the *y*-intercept.
6. Name the *x*-intercept(s).

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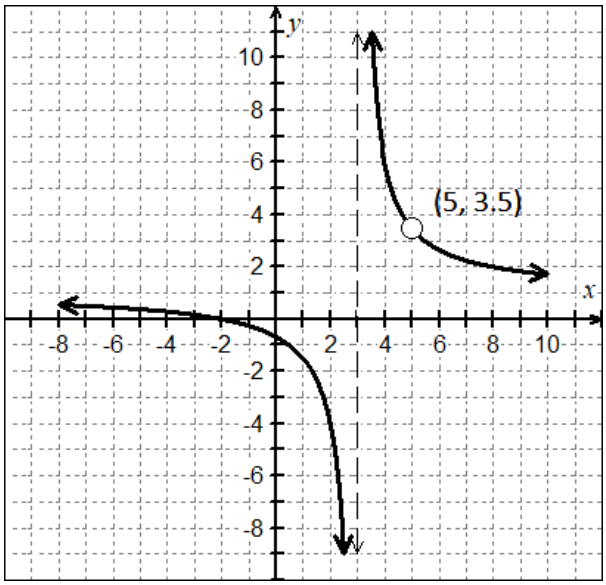
Graphically

Use the graph of $y = f(x)$ below to complete the activity.



Numerically

Complete the table.

x	$f(x)$
-7	0.5
-2	0
0	$-\frac{2}{3}$
1	$-\frac{3}{2}$
2	-4
3	undefined
4	6
5	undefined

Algebraically

If $f(x) = \frac{x^2-3x-A}{x^2-8x+B}$, find the values of *A* and *B*.

Since x=5 is a hole, the factor must cancel and *x*=3 is a vertical asymptote the factor is in the denominator

$$y = \frac{(x-5)(x+2)}{(x-5)(x-3)}$$

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

A=10; B= 15

Verbally

1. What is the domain of the function?

$$(-\infty, 3) \cup (3,5) \cup (5, \infty)$$

2. What is the range of the function?

$$(-\infty, 1) \cup (1, \infty)$$

3. For what value(s) of *x* is the function undefined?

$$x = 3, x = 5$$

4. Write an equation for the horizontal asymptote.

$$y = 1$$

5. State the coordinates for the *y*-intercept.

$$\left(0, -\frac{2}{3}\right)$$

6. Name the *x*-intercept(s).

$$(-2, 0)$$