

# AP Calc Warm Up – 9/9/10

Name: \_\_\_\_\_

Period: \_\_\_\_\_

1) Determine if the following functions have any discontinuities.

a.  $f(x) = \begin{cases} x - 5, & -3 \leq x < 2 \\ 2x - 6, & 2 \leq x < 4 \end{cases}$

b.  $f(x) = \frac{1}{x^4 - 16}$

# AP Calc

## Rational Functions and Continuity

Name:\_\_\_\_\_Date:\_\_\_\_\_Period:\_\_\_\_\_

Students will be able to find discontinuities in rational functions.
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Rational Functions:

Examples:

Discontinuities in rational functions:

**Find the Zero**

$$f(x) = \frac{x^2 + 3x + 2}{x + 2}$$

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

$$f(x) = \frac{x + 3}{x^2 + x - 6}$$

$$f(x) = \frac{x^2 + x - 12}{x^2 - 6x + 9}$$

$$f(x) = \frac{x^2 - 16}{x - 4}$$

$$f(x) = \frac{x^2 - 4x - 12}{x^3 - 3x^2 - 16x - 12}$$

# AP Calc – Exit Slip – 9/9/10

Name: \_\_\_\_\_

Block: \_\_\_\_\_

- 1) Find the discontinuity (or discontinuities) for the following functions:

a.  $f(x) = \frac{x^2 - 5x + 6}{x + 3}$

b.  $f(x) = \frac{x^2 - 4x - 5}{x^2 + 3x + 2}$

- 2) Find the value of  $k$  that makes the following function NOT CONTINUOUS at  $x = 3$  and  $x = -5$ .

$$f(x) = \frac{1}{x^2 + 2x - k}$$