Name: _____ Date: _____

PCH: Constructing Rational Functions Given Characteristics Ms. Loughran

Do Now:

1. Without a calculator, sketch the graph of $y = \dfrac{x-2}{x^2-3x-4}$

Classwork:

1. Construct a rational function with the following characteristics:

   Horizontal Asymptote: $y = 0$
   Vertical Asymptote: $x = -3$
   Hole at $(2,5)$

2. Construct a rational function with the following characteristics:

Horizontal Asymptote: $y = 0$
Vertical Asymptote: $x = 5$
Hole at $(2, 3)$

3. Construct a rational function with the following characteristics:

Oblique Asymptote: $y = x - 2$
Vertical Asymptote: $x = -1$

4. Construct a rational function with the following characteristics:

Horizontal asymptote: *none*
Vertical Asymptotes: $x = 0,\ x = 2$

5. Construct a rational function with the following characteristics:

Horizontal asymptote: $y = 0$
Vertical Asymptote: $x = 1$
Hole at $x = -3$

6. Construct a rational function with the following characteristics:

Horizontal asymptote: $y = 0$
Vertical Asymptotes: $x = 0$ and $x = 2$
Hole at $(3, 7)$

7. Construct a rational function with the following characteristics:

Oblique Asymptote: $y = x - 2$
Vertical Asymptote: $x = -1$
x-intercepts: $(-2, 0)$ and $(3, 0)$

8. Construct a rational function with the following characteristics:

Horizontal asymptote: $y = 4$
Vertical Asymptote: $x = 0$ and $x = 2$