Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_REMEDIATION Rational Function Parts 1 Period\_\_\_\_\_\_\_\_\_

ALL ANSWERS ON FUTURE ASSIGNMENTS AND ASSESSMENTS MUST BE IN PROPER FORMAT

Lines are stated as lines and points are stated as points

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| BAD example  X intercept(s) 4  Y intercept ???? or blank  Horizontal asymptote  Vertical asymptote 3 or -3 | GOOD example  X intercept(s) (4,0) or (0,0)  Y intercept (0,)  Horizontal asymptote y =    Vertical asymptote x = 3 or x = -3 |

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| To find the y intercept of any function   1. Evaluate the function at x = 0   To find the x intercepts of a rational function   1. Factor the numerator 2. Factor the denominator 3. Check to see if a hole is present FIRST 4. Cancel off any common terms 5. Set remaining factors from NUMERATOR equal to 0 and solve for x (these numbers are the x intercepts) 6. STATE as a POINT (x, 0) | To determine if a rational function has a hole   1. Factor both the numerator and denominator 2. Does the numerator and denominator have a factor that has a variable in common? 3. If YES on 2) then a hole is present on the graph of the rational function 4. If YES on 2) set canceled factor equal to zero and solve for x (this is the x of your hole and a domain restriction) 5. If YES on 2) replace x in NEW version of rational function with the solution you just found in 4) | To find vertical asymptotes of a rational function   1. Factor the numerator 2. Factor the denominator 3. Check to see if a hole is present FIRST 4. Cancel off any common terms 5. Set remaining factors from DENMINATOR equal to 0 and solve for x (these numbers are the x values of the vertical asymptotes & domain restrictions) 6. STATE as an EQUATION x = \_\_\_\_ |

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| State the equation of the given line  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  State the intercept as a point \_\_\_\_\_\_\_\_ | State the equation of the given line  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  State the intercept as a point \_\_\_\_\_\_\_\_ | Vertical lines take the form  X = some number  All points on a vertical line take the form  (fixed number, any number y)  X = 0 special example = y axis  Horizontal lines take the form  y = some number  All points on a vertical line take the form  (any number x, fixed number)  Y = 0 special example = x axis |

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| (if NONE, then state so)  X intercept(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Y intercept \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Horizontal asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Vertical asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Does this rational function have a hole? \_\_\_\_\_\_\_  If this rational function has a hole, then state it \_\_\_\_\_\_\_\_\_  X intercept(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Y intercept \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Horizontal asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Vertical asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Does this rational function have a hole? \_\_\_\_\_\_\_  If this rational function has a hole, then state it \_\_\_\_\_\_\_\_\_  X intercept(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Y intercept \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Horizontal asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Vertical asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Does this rational function have a hole? \_\_\_\_\_\_\_  If this rational function has a hole, then state it \_\_\_\_\_\_\_\_\_ | X intercept(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Y intercept \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Horizontal asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Vertical asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Does this rational function have a hole? \_\_\_\_\_\_\_  If this rational function has a hole, then state it \_\_\_\_\_\_\_\_\_  X intercept(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Y intercept \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Horizontal asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Vertical asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Does this rational function have a hole? \_\_\_\_\_\_\_  If this rational function has a hole, then state it \_\_\_\_\_\_\_\_\_  X intercept(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Y intercept \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Horizontal asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Vertical asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Does this rational function have a hole? \_\_\_\_\_\_\_  If this rational function has a hole, then state it \_\_\_\_\_\_\_\_\_  X intercept(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Y intercept \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Horizontal asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Vertical asymptote \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Does this rational function have a hole? \_\_\_\_\_\_\_  If this rational function has a hole, then state it \_\_\_\_\_\_\_\_\_ |