Pre-Calculus 30 **Chapter 9 Review**

Rational functions: $f(x)=\frac{p(x)}{q(x)}$. Restriction: *q(x)≠0*

Base Functions:	$f(x)=\frac{1}{x}$	$f(x)=\frac{1}{x^2}$
Tranformations:	$g(x)=\frac{a}{b(x-h)}+k$	$g(x)=\frac{a}{(b(x-h))^2}+k$
Vertical asymptotes: Horizontalasymptotes: Vertical stretch:	*x = h* *y= k* a	*x = h* *y = k* a
Mapping Notation:	$\left(\frac{1}{b}x+h,\ ay+k\right)$	$\left(\frac{1}{b}x+h,\ ay+k\right)$

Domain – possible values for *x*

Range – possible values for *y*

Graphing Rational Functions/Writing Equations of Rational Functions

- ***x-intercept***: a factor of ***only*** the numerator
- ***vertical asymptote***: a factor of ***only*** the denominator
- ***point of discontinuity***: a factor of ***both*** the numerator and the denominator
- find y-intercept (let *x* = 0)
- sign analysis: tells where the graph is positive and negative
- horizontal asymptote:
  a) if numerator degree = denominator degree, *y* = ratio of leading coefficients

  b) If numerator degree < denominator degree, y = 0

Solving Rational Equations Algebraically – watch for extraneous roots!

Review Questions: Page 468 #1 – 3, 5, 6, 8a, 9 (alg. only), 10a (alg. only)

Page 470 #1, 2, 6, 7 (alg. only), 8, 10 11, 12