



Chapters 3 & 7:
Functions & Their Transformations
 Cornell Notes/Summary Sheet

Name: _____
 Period: _____

- Section C3.APK – Big Ideas**
- Domain
 - Range
 - Interval notation
 - x-intercept
 - y-intercept
 - Increasing/decreasing/constant intervals
 - Local extrema: maxima & minima
 - End behavior

Your Notes

Sections 3.1 – 3.3 – Big Ideas

- Graphing transformations

$$y = af(x \pm h) \pm k$$

Function Notation	Verbal Description	Coordinate Rule	Domain or Range Change?
$f(x) + k$			
$f(x) - k$			
$f(x - h)$			
$f(x + h)$			
$-f(x)$			
$f(-x)$			
$af(x)$			
$a/f(x)$			

<p><u>Section 7.1 – Big Ideas</u></p> <ul style="list-style-type: none"> Combining functions using The Algebra of Functions Evaluating a combination of functions 	<p><u>Your Notes</u></p> <p>Sum: $(f + g)(x) = f(x) + g(x)$ Difference: $(f - g)(x) = f(x) - g(x)$ Product: $(fg)(x) = f(x) \cdot g(x)$ Quotient: $\left(\frac{f}{g}\right)(x) = \frac{f(x)}{g(x)}$, provided $g(x) \neq 0$.</p>
<p><u>Section 7.2 – Big Ideas</u></p> <ul style="list-style-type: none"> Inverse functions Function notation vs. Inverse Function Notation Evaluating an inverse function Finding the inverse of a function 	<p><u>Your Notes</u></p> <p>$f^{-1}(x) = ?$</p> <p>Step One: Rewrite $f(x) =$ as $y =$ Step Two: Swap x and y Step Three: Solve for y (get it by itself)</p>
<p><u>Section 7.3 – Big Ideas</u></p> <ul style="list-style-type: none"> Composite functions Evaluating a composition of functions Writing composite functions 	<p><u>Your Notes</u></p> <p>Given $f(x) = 3x + 2$ and $g(x) = x + 5$</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff9c4;"> $\begin{aligned} f(g(x)) &= f(x+5) \\ &= 3(x+5) + 2 \\ &= 3x + 15 + 2 \\ &= 3x + 17 \end{aligned}$ </div> <div style="border: 1px solid #ccc; padding: 5px; background-color: #fff9c4;"> $\begin{aligned} g(f(x)) &= g(3x+2) \\ &= (3x + 2) + 5 \\ &= 3x + 7 \end{aligned}$ </div> </div>