

|   | RED | YELLOW | GREEN |
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| <p style="text-align: center;"><u><i>Unit 1 - Review of Function Basics</i></u></p> <p><b>Characteristics of Functions</b></p> <ul style="list-style-type: none"> <li>• Be able to distinguish between a function and relation.</li> <li>• Be able to evaluate a function.</li> <li>• Be able to solve a function.</li> <li>• Be able to interpret the meaning of function notation i.e. <math>f(2) = -4</math>.</li> <li>• Be able to find the domain of a function using various strategies.</li> <li>• Be able to find the range of a function using various strategies.</li> <li>• Be able to identify the intervals of increase and decrease on a function using various strategies.</li> <li>• Be able to identify and classify the extrema (absolute/local minimum/maximum).</li> <li>• Be able to graph and analyze twelve parent functions.</li> </ul> <p><b>Inverses of Functions</b></p> <ul style="list-style-type: none"> <li>• Be able to find the inverse of a function.</li> <li>• Be able to restrict a function so the inverse is a function.</li> </ul> <p><b>Transformations of Functions</b></p> <ul style="list-style-type: none"> <li>• Be able to state/describe the transformations on a function given an equation or the graph.</li> <li>• Be able to graph a transformed function from a graph or equation.</li> <li>• Be able to write the equation of a function given a graph of a transformed function.</li> </ul> <p><b>Composition of Functions</b></p> <ul style="list-style-type: none"> <li>• Be able to write the equation of a composition function.</li> <li>• Be able to work with composition notation.</li> <li>• Be able to compose a function with its inverse and explain the result.</li> <li>• Be able to predict the transformations of a parent function with a linear function.</li> </ul> |     |        |       |
| <p style="text-align: center;"><u><i>Unit 2 - Polynomial Functions</i></u></p> <p><b>Basic Characteristics of Polynomial Functions:</b></p> <ul style="list-style-type: none"> <li>• Be able to use appropriate technology to describe characteristics of polynomial function.</li> <li>• Be able to graph the differences in polynomial functions depending on their degree.</li> <li>• Be able to describe short/long term behavior of a polynomial function.</li> <li>• Be able to predict the end behavior of a polynomial function.</li> <li>• Be able to sketch/describe the behavior of a polynomial function around the x-axis.</li> <li>• Be able to state the roots of a polynomial function given the factors.</li> </ul>  |     |        |       |

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| <ul style="list-style-type: none"> <li>• Be able to state the factors of a polynomial function given the roots.</li> <li>• Be able to write a polynomial function as the product of linear factors.</li> </ul> <p><b>Algebra of Polynomial Functions:</b></p> <ul style="list-style-type: none"> <li>• Be able to perform long/synthetic division to determine the factors/roots of a polynomial function.</li> <li>• Be able to perform long/synthetic division to determine the remainders of division.</li> <li>• Be able to calculate the remainder when a polynomial function is divided by a linear factor without using long/synthetic division.</li> <li>• Be able to predict the possible roots of a polynomial function.</li> <li>• Be able to solve quadratic equations for complex roots.</li> <li>• Be able to write a quadratic as a product of linear factors using both real and complex numbers.</li> <li>• Be able to solve for all real roots of a cubic/quartic polynomial using algebra, graphs, and technology.</li> <li>• Be able to solve for all complex roots of a cubic/quartic polynomial using algebra, graphs, and technology.</li> <li>• Be able to write a polynomial as a product of linear factors using both real and complex numbers.</li> </ul> |  |  |  |
| <u><i>Unit 3 - Rational Functions</i></u>  |  |  |  |
| <p><b>Characteristics of Rational Functions</b></p> <ul style="list-style-type: none"> <li>• Be able to write the equations of the asymptotes (horizontal, vertical, slant).</li> <li>• Be able to state the domain and range.</li> <li>• Be able to find the x and y intercepts</li> <li>• Be able to describe what transformations have occurred to the parent function.</li> <li>• Be able to determine where (1,1) and/or (-1,-1) has been transformed.</li> <li>• Be able to sketch an accurate graph of any rational function without technology.</li> <li>• Be able to state the end behaviors of rational functions.</li> <li>• Be able to state the asymptotic behavior of rational functions.</li> <li>• Be able to find where a "hole" is located on the graph.</li> </ul>  |  |  |  |

1. Here is the [Larson Chapter 1 Review](#) on Function Basics
2. Here is the [Holt Chapter 3 Review](#) on Function Basics
3. Here is the [Sullivan Chapter 3 Review](#) on Function Basics
4. Here is the [UNIT TEST on Function Basics](#) from this year
5. Here is the [Larson Chapter 2 Review](#) on Polynomial & Rational Functions
6. Here is the [Holt Chapter 4 Review](#) on Polynomial & Rational Functions
7. Here is the [Sullivan Chapter 5 Review](#) on Polynomial & Rational Functions
8. Here is the [UNIT TEST on Polynomial Functions](#) from this year

9. A [Functions PreTEST](#) from AS Doha
10. A [second Functions PreTEST](#) from AS Doha
11. A [Functions Unit TEST](#) from AS Doha
12. A [Polynomial & Rational Functions TEST](#) from AS DOHA

Some on-line tests

13. [Graphing Rational Functions](#) from UC Davis
14. [Functions, Domain and Range, Composition](#) from UC Davis
15. [Inverse Functions](#) from UC Davis
16. [PreCalculus Practice Test #2](#) from SOSMath
17. [PreCalculus Practice Test #3](#) from SOSMath
18. [PreCalculus Practice Test #4](#) from SOSMath
19. [PreCalculus Practice Test #5](#) from SOSMath
20. [PreCalculus Practice Test #6](#) from SOSMath
21. [PreCalculus Practice Test #7](#) from SOSMath
22. [PreCalculus online Multiple Choice EXAM](#) from Education.com
23. [A PreCalculus site](#), complete with questions & answers/solutions