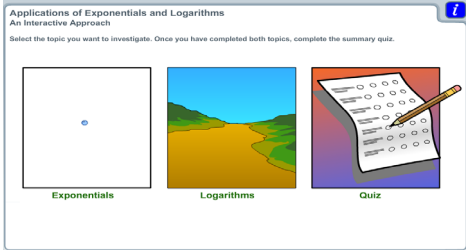
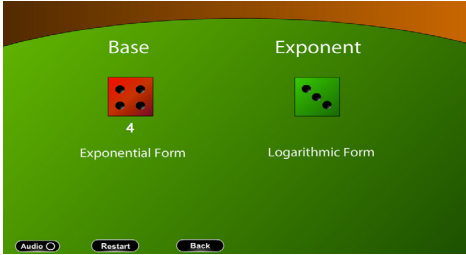
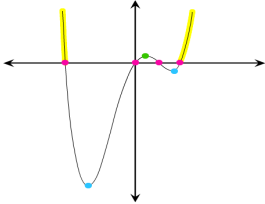


# MHF4U

## Ontario Educational Resources Bank (OERB) Activities

Exponential and Logarithmic Functions	
Activity	Description
<p><b>Applications of Exponential and Logarithmic Functions</b></p>  <p><b>Resource ID: ELO1090780</b></p>	<p>Build understanding of exponential and logarithmic functions by investigating real-world situations involving exponential growth or decay as well as situations involving logarithmic formulae. Practise applying this knowledge by completing a quiz.</p>
<p><b>Log Laws</b></p> <p>Recall: a logarithm is an alternative notation for expressing an exponent; it is the inverse of exponentiation. The logarithm of a number is the exponent to which a base must be raised to get the number.</p> <p>Example 1:</p> $\log_5 125 = 3$ <p>and</p> $5^3 = 125$ <p><input type="button" value="Next"/></p> <p><b>Resource ID: ELO1087840</b></p>	<p>Build understanding of the product, quotient and power laws for logarithms by investigating a variety of equations after reviewing the definition of a logarithm.</p>
<p><b>Log Rolling (Can be Dicey)</b></p>  <p><b>Resource ID: ELO1178270</b></p>	<p>Practise converting between logarithmic and exponential forms and evaluating logarithms by answering questions in a challenge activity.</p>
Polynomial and Rational Functions	
Activity	Description
<p><b>Characteristics of Polynomials</b></p> <p>Move the cursor over the coloured parts of the graph of this polynomial function to see their description. Click the coloured parts to learn more.</p>  <p><b>Resource ID: ELO1090650</b></p>	<p>Build understanding of polynomial functions by reviewing the key characteristics of polynomial functions through interactive descriptions.</p>

## Polynomial and Rational Functions (continued)

## Activity

## Description

## Complex Rational Functions Curve Sketching

Complex Rational Functions  
Curve Sketching

Characteristics

From Characteristics to Graphs

Practice

$$f(x) = \frac{h(x)}{g(x)}, g(x) \neq 0$$



Resource ID: ELO1090760

Build understanding of complex rational functions by viewing a tutorial analysis of the critical characteristics of their equations leading to sketches of their graphs. Practise applying this knowledge by completing analyses of several rational functions and matching each equation to an appropriate graph.

## Division of Polynomials

## Synthetic Division

$$(x^2 - 7x + 10) \div (x - 5)$$

Quotient:  $1x - 2 R0$   
(though we usually do not put in the 1)



Menu

Sample Problems

Back

Next

Resource ID: ELO1093610

Practise long division and synthetic division of a polynomial by a binomial by following the illustrated step-by-step procedures provided.

## Finite Differences

## Finite Differences - Application

## Example 2

Given the following data set:

x	f(x)	First Level Difference $\Delta_1 f(x)$	Second Level Difference $\Delta_2^2 f(x)$	Third Level Difference $\Delta_3^3 f(x)$
1	12			
2	-10	-22		
3	-18	-8	14	
4	0	18	26	12
5	66	66	30	12
6	162	106	50	12

3. Are these differences constant? If not, as in this case, find the next difference level.

Menu

Back

Continue

Resource ID: ELO1098290

Build understanding of finite differences by investigating the finite differences for linear, quadratic, cubic and quartic functions and how they can predict the leading coefficient of the function. Practise applying this knowledge by determining the finite differences, identifying the type of polynomial and the value of the leading coefficient from given tables of values.

## Polynomial Concentration

Resource ID: ELO1178280

Build understanding of characteristics of polynomial functions by matching different representations of a variety of polynomial functions.



