

**Key to Interactive Examples<sup>†</sup>**  
**by Al Shenk**  
**for Math 10A at UCSD**

Look for examples that are similar to your homework and exam problems.

*Chapter 1. A Library of Functions*

<i>Hughes-Hallett</i>	Topic	Interactive Examples
Section 1.1	Functions and change	Section 0.1: 1–4 Section 2.1: 3, 4
Section 1.2	Exponential functions	Section 0.3: 3, 4
Section 1.3	New functions from old	Section 0.3: 7, 8 Section 0.6: 1, 2, 4
Section 1.4	Logarithmic functions	Section 0.4: 4–6
Section 1.5	Trigonometric functions	Section 0.5: 1–4, 6, 7
Section 1.6	Powers, polynomials, and rational functions	Section 0.3: 2, 5
Section 1.7	Introduction to continuity	Section 1.2: 1–5
Section 1.8	Limits	Section 1.1: 1–4 Section 1.3: 1, 2

*Chapter 2. Key Concept: The Derivatives*

<i>Hughes-Hallett</i>	Topic	Interactive Examples
Section 2.1	How do we measure speed?	Section 2.1: 1, 2, 5, 6 Section 2.2: 1–4
Section 2.2	The derivative at a point	Section 2.3: 1–5 ( $\Delta x = h$ in #5)
Section 2.3	The derivative function	Section 2.5: 1–5
Section 2.4	Interpretations of the derivative	
Section 2.5	The second derivative	Section 2.5: 6
Section 2.6	Differentiability	

<sup>†</sup>See the web site <http://www.math.ucsd.edu/~ashenk/>.

**Chapter 3. Shortcuts to Differentiation**

<b><i>Hughes-Hallett</i></b>	<b>Topic</b>	<b>Interactive Examples</b>
Section 3.1	Powers and polynomials	Section 2.4: 1–4
Section 3.2	The exponential function	
Section 3.3	The Product and Quotient Rules	Section 2.6: 1–4 Section 3.3: 4
Section 3.4	The Chain Rule	Section 2.7: 1–3 Section 3.1: 1, 2a Section 3.2: 1–3 Section 3.3: 3, 5
Section 3.5	The trigonometric functions	Section 3.5: 1–4 Section 3.6: 1–5
Section 3.6	The Chain Rule and inverse functions	
Section 3.7	Implicit functions	Section 5.3: 1–5
Section 3.8	Hyperbolic functions	Section 3.7: 1–6
Section 3.9	Linear approximations	Section 2.8: 1–4
Section 3.10	Theorems about differentiable functions	

**Chapter 4. Using the Derivative**

<b><i>Hughes-Hallett</i></b>	<b>Topic</b>	<b>Interactive Examples</b>
Section 4.1	Using first and second derivatives	Section 4.1: 1–3 Section 4.2: 1, 2 Section 4.3: 1–4 Section 4.4: 1
Section 4.2	Families of curves	
Section 4.3	Optimization	Section 4.5: 1, 2 Section 4.6: 1–5
Section 4.4	Applications to marginality	
Section 4.5	Optimization and modeling	
Section 4.6	Rates and related rates	Section 2.7: 4 Section 3.5: 5 Section 3.6: 6 Section 5.2: 1–3
Section 4.8	Parametric equations	Section 13.1: 1–5