

**Testable Skills – Unit 1**

*Students should expect test questions that require a synthesis of these skills.*

**Section 1.3: Inverse, Exponential, and Logarithmic Functions**

<b>Skill</b>	<b>MyLab Math (Correlated to Textbook)</b>	<b>Textbook</b>
Answer conceptual questions involving inverse, exponential, and logarithm functions.	1, 3, 15, 17, 92	
Determine the largest possible intervals on which a given function has an inverse.	5, 21, 22, 23	
Find and graph inverse functions.	9, 12, 27, 29, 32, 33, 78	
Use the Change of Base Rule to evaluate logarithms and rewrite exponential expressions.	18, 71, 74	
Evaluate logarithmic expressions.	46, 49	
Solve exponential or logarithmic equations.	53, 57, 59	

**Section 1.4: Trigonometric Functions and Their Inverses**

<b>Skill</b>	<b>MyLab Math</b>	<b>Textbook</b>
Answer conceptual questions involving trigonometric functions and their inverses.	1, 14, 15, 16, 17, 70, 89, (104)	
Evaluate trigonometric functions.	20, 21, 23, 29, (61), 93	
Solve trigonometric equations.	35, 40, 42	
Evaluate inverse trigonometric functions.	51, 55, 57, 61, 75, 79	
Graph trigonometric functions (i.e. a general sketch)	104	

**Section 2.1: The Idea of Limits**

<b>Skill</b>	<b>MyLab Math</b>	<b>Textbook</b>
Answer conceptual questions involving average velocity or secant and tangent lines.	1, 9	
Calculate average and instantaneous velocities.	13, 17, 24	
Calculate slopes of secant and tangent lines.	26, 28	
Solve applications involving average and instantaneous velocities.	31	32

## Section 2.2: Definitions of Limits

Skill	MyLab Math	Textbook
Answer conceptual questions involving definitions of limits.	2, 33	
Find limits from a graph.	3, 6, 15, 17, 23, 28, 29, (35), (43), 51	19, 20
Estimate limits from a table. (Review of skill from Section 2.1.)	7	
Solve applications involving the evaluation of limits by graphing.	35	
Estimate limits using a graphing utility.	43	
Sketch graphs of functions given information about limits and function values. (Skill recurs in future sections.)	46	

## Section 2.3: Techniques for Computing Limits

Skill	MyLab Math	Textbook
Answer conceptual questions involving techniques to compute limits.	3, 14, 17, 81, 85, 95	105
Compute limits, stating the limit laws used.	7, 11, 12	
Evaluate two-sided limits using limit laws and theorems.	19, 23, 25, 29, 33, 37, 39, 41, 47, 53, 56, 90, 93	100
Evaluate one-sided limits using limit laws and theorems.	73, 75	

## Section 2.4: Infinite Limits

Skill	MyLab Math	Textbook
Answer conceptual questions involving infinite limits and vertical asymptotes.	3, 13	57
Find infinite limits numerically or graphically.	5, 6, 9	11
Sketch graphs or functions involving infinite limits.	17, 54	
Evaluate limits analytically.	21, 27, 33, 35, 37, 42	51
Find vertical asymptotes.	45, 50, 61, 65	

## Section 2.5: Limits at Infinity

Skill	MyLab Math	Textbook
Evaluate limits at infinity.	7, 9, 12, 13, 17, 22, 29	
Answer conceptual questions involving end behavior and horizontal asymptotes.	11, 63	
Find horizontal and vertical asymptotes of functions.	37, 40, 41, 43, 47, 71, 75	81
Find slant asymptotes and sketch graphs of rational functions.	51, 55	
Determine end behavior of transcendental functions and sketch their graphs.	59, 61	
Solve applications involving limits used to find steady states.	65, 69	
Sketch graphs of functions given information about end behavior.	86	

## Section 2.6: Continuity

Skill	MyLab Math	Textbook
Answer conceptual questions involving continuity.	2, 9	
Find points of discontinuity or intervals of continuity.	7, 13, 15, 30, 39, 43, 47	
Determine if functions are continuous at given values.	19, 21, 23, 87	
Evaluate limits using continuity principles.	32, 49, 51, 65	53, 88
Use the Intermediate Value Theorem to show equations have solutions on given intervals.		67a, 71a
Sketch graphs of continuous functions given information about their points of discontinuity.	85	
Solve applications involving continuity principles.		93
Classify discontinuities.	95, 99	
(*Review: Evaluate two-sided limits using limit laws and theorems.)	(2.3.27)	

## Section 2.7: Precise Definitions of Limits (Delta-Epsilon)

Skill	MyLab Math	Textbook
Answer conceptual questions involving precise definitions of limits.	2, 5, 49	
Determine delta values associated with the precise definition of a limit.	10, 12	
Use precise definitions of limits to prove statements. (Skill is limited to linear functions and linear functions with a hole.)	19, 21	20, 22
(*Review: Evaluate limits analytically.)	(2.4.23)	

## Section 3.1: Introducing the Derivative

Skill	MyLab Math	Textbook
Answer conceptual questions involving tangent lines and derivatives.	5	
Solve applications involving the use of limits to calculate derivatives.	13, 51	
Use limit definitions to find equations of tangent lines.	15, 21, 25, 27, 29, 31, 35, 37, 41, (44)	
Use limit definitions to evaluate derivatives at given points.	44	
Compute average and instantaneous rates of change from graphs and tables. (Review of skill from Section 2.1)	52	
Determine functions given limits of difference quotients.	57, 60	
(*Review: Evaluate limits at infinity.)	(2.5.20)	
(*Review: Find horizontal and vertical asymptotes of functions.)	(2.5.77)	

## Section 3.2: The Derivative as a Function

Skill	MyLab Math	Textbook
Answer conceptual questions involving the derivative as a function.	1, 7, 8	
Obtain the graphs of derivative functions from graphs of functions.	15, 17, 51	
Find points where functions are continuous and differentiable.	19, 54, 77	71
Find derivatives of functions using limits.	29, 35, 37, 39	43
Solve applications involving derivatives as functions.	55	41

Use graphs of functions to analyze slopes of tangent lines.	45, (73)	47, 48, 49
Obtain graphs of functions from graphs of their derivative function.	60	62
Find equations of normal lines.	63, 66	
Find vertical tangent lines from graphs.	73	
(*Review: Find points of discontinuity or intervals of continuity.)	(2.6.28)	
(*Review: Evaluate limits using continuity principles.)	(2.6.57)	