

List of Topics for Math 130 Precalculus using Larsen *Precalculus*, 3rd edition

Chapter	Subject: to be reviewed by each student on his own
A.2	Exponents and radicals
A.3	Polynomials and factoring
A.4	Rational expressions
A.5	Solving Equations
on own	Word Problems
Chapter	Subject: part of the course syllabus
1.1	Rectangular coordinate system, distance and midpoint formulas.
1.2	Graphs of equations, circles: completing the square. Symmetry.
1.3	Linear equations in two variables: point-slope and slope-intercept forms. Lines: slope, intercepts, parallel, perpendicular, vertical, horizontal.
1.4	Functions: domain, range, notation $f(x)$ ; the difference quotient.
1.5	Graphs of functions, even and odd functions.
1.6	Parent functions.
1.7	Transformations of functions.
1.8	Arithmetic combinations of functions; composite functions, notation.
1.9	Inverse functions, notation.
1.10	skip.
2.1	Quadratic functions, completing the square, maximum and minimum values. Graphs of parabolas. Max-min word problems. Note: the max-min word problems are not adequately presented in the text. Assign and emphasize problems 81 and 83 on page 122 and problem 9 on page 192.
2.2–2.7	skip. <i>Not a part of this course.</i> Sections 2.4 and 2.6 could optionally be added to the end of the course if there is sufficient time.
3.1	Exponential functions and their graphs: domain, range, and asymptotes; the natural exponential function: base and graph. The course will cover to page 204, example 7 only. Skip applications, but example 9 on page 207 is optionally to be used as a challenge problem.
3.2	Logarithmic functions and their graphs: domain, range, and asymptotes; the natural logarithmic function: base and graph.
3.3	Properties of logarithms, change of base formula.
3.4	Exponential and logarithmic equations. (skip example 10 on page 233.)
3.5	skip.
Chap. 3	Exponential growth and decay (without using $e$ or $\ln$ ), doubling time. No examples in text, but problems 65 and 69–72 on pages 209–210 are good examples. Also problems 33–34 on page 246 and problem 114 on page 254 are doable without $e$ or $\ln$ . (A problem like 33 or 34 is on the final exam, solutions with or without $e$ and $\ln$ being acceptable.)
4.1	Angle measure: radians, angular speed. Key section: examples 1 through 7 are very important. On page 262, the definition of a radian seems contrived and accidental. We need a reason for it.
4.2	Trigonometric functions: standard position on the unit circle. Page 273 has a huge error six lines from the bottom: “similar reasoning” is nonsense. The coordinates for $\pi/6$ were never found and it is nigh impossible to do so at this juncture.
4.3	Right triangle trig: trig ratios for acute angles, special values and identities, solving right triangles.