

PreCalculus 12 (Fall Semester 2017)

Textbook: PreCalculus 12 - McGraw Hill

** Supplementary materials will be provided by the teacher for specific curriculum topics.

Student Evaluation: student grades will be calculated based upon the following:

(a) Quizzes	50 %
(b) Assignments	20 %
(c) Final Exam	<u>30 %</u>
Total	100%

- The PreCalculus 12 course is designed to be an application of the accumulated knowledge and skills acquired from the grade 10 and 11 math courses in combination with the newly developed concepts from the PreCalculus 12 course.
- The PreCalculus 12 course is designed for those students who plan on furthering their education at a post-secondary institution in the field of science, engineering, business, etc. and require an **advanced senior level mathematics course**.
- (Most post-secondary institutions require a **minimum of 65 - 70 %** in PreCalculus 12 for acceptance into specific programs so please check with your post-secondary institution.)
- Course material is covered at a very rapid pace and students are encouraged to attend class on a very regular basis and to put forth a conscientious effort in not only quizzes but also assignments, homework, etc.
- Students require a scientific calculator not necessarily one with graphing capabilities.
- Assignments form an important part of the PreCal 12 course and they will be assigned to allow students ample time for their completion. Students are to have completed assignments ready to be handed in at **the beginning** of class period in which they are due. **Assignments are not to be completed during the class in which they are due**. Late assignments will be reduced in value by 10 % per day. Once the corrected assignments are handed back no further assignments will be accepted and the assignment will receive a grade of zero.
- Students who are absent for family trips, sporting events outside of school teams, etc. will not be provided with “work packages” to complete. They will be expected to get all missed materials from classmates **upon their return**.
- In the event that a student is **excused absent** during the writing of a quiz, he/she will write it during the first class upon their return, in the school learning centre.
- In the event that a student is **unexcused absent** during the writing of a quiz, he/she **will not** be given the opportunity to write the quiz and receives a grade of zero for that quiz.

Please note: An unexcused absence is one in which parent notification is not provided. Some examples of unexcused absences are listed below:

- In school but not in class (i.e. skipping class)
 - Vacations taken outside of scheduled school holidays
 - Participation in activities not authorized or organized by the school (ex: external sporting events).
- Extra help for students will be provided before and after school hours. Students are encouraged to seek help with curriculum areas of difficulty before new material is covered.

**** Students are reminded that extra help will not be available the day of a scheduled quiz or assignment due date.**

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(1) Polynomial Functions

- (i) Function Notation ($f(x)$)
- (ii) Sum/difference of functions
- (iii) Product/quotient of functions
- (iv) Composition of functions
- (v) Operations using functions
- (vi) Inverse of a function
- (vii) Aspects of a function
(domain,range,intercepts)
- (viii) Polynomial degree
- (ix) Sketching polynomial functions
- (x) Factoring methods
- (xi) Rational root theorem
- (xii) Factor theorem
- (xiii) Long and synthetic division
- (xiv) Polynomial inequalities
- (xv) Number line and set notation solutions

(2) More Relations and Functions

- (i) Quadratic and square root functions / equations
- (ii) Rational expression functions / equations
(asymptote lines horizontal / vertical)
- (iii) Absolute value functions / equations
(number line solutions)
- (iv) Number line and set notation solutions
- (v) Conics (circle, parabola, ellipse, hyperbola)

(3) Exponential and Logarithmic Functions

- (i) Exponent laws
- (ii) Solving simple exponential equations
(same base)
- (iii) Exponential functions / equations
(asymptote line)
- (iv) Laws of logs
- (v) Solving simple log equations
- (vi) Solving complex exponential equations using logs
- (vii) Solving complex log equations
- (viii) Logarithmic functions/ equations
(asymptote line)

(4) Circular functions

- (i) Angle measures in degrees and radians
- (ii) Arc length, coterminal angles, etc.
- (iii) Trigonometric functions (sin,cos,tan)
- (iv) Graphing and transforming trig functions
- (v) Reciprocal trig functions (csc,sec,cot)
- (vi) Graphing and transforming recip trig functions
- (vii) Trigonometric identities (proofs)

- reciprocal
- quotient
- Pythagorean
- Sum / difference
- Double angle

- (viii) Solving trig equations (easy)
- (ix) Solving trig equations using identities

(5) Rate of Change

- (i) Definition of a rate of change
- (ii) Average rate of change
- (iii) Instantaneous rate of change
- (iv) Secant vs tangent lines
- (v) Limits
- (vi) Slope of secant and tangent lines
- (vii) Definition of a derivative
- (viii) Power rule
- (ix) Curve sketching (max, min, CP)
- (x) Concavity (POI)