

### Advanced Functions: Course Outline

Resource: McGraw Hill Advanced Functions 12

The achievement chart, as shown below, provides a standard, province-wide method for teachers to use in assessing and evaluating their students' achievement. Students are evaluated according to the major categories or strands in each course. Ministry curriculum documents provide detailed description of student achievement levels.

Knowledge/Understanding	Application	Communication	Thinking
30%	30%	20%	20%

The Term Mark makes up 70% of the student's overall mark, with the remaining 30% reserved for the Summative Evaluation(s).

#### **Unit 1: Polynomial Functions**

##### 1.1 – Power Functions

- Pg. 11 #1(a,d,e,f), 2(a,d,e), 3(omit iv), 4, 7

##### 1.2 – Characteristics of Polynomial Functions and Family of Polynomials

- Pg. 26 # 1, 2 [a,b,d – for #1 (omit d)], 3 (a,b,d,f), 5

##### 1.3 – Equations and Graphs of Polynomial Functions

- Pg. 39 # 1, 2 (a,c,d), 3 [omit b – do (i, ii), Optional (iii, iv)], 6 (a,b,c), 7 (a,b)

##### 1.4 – Transformations

- Pg. 49 # 1, 4, 5, 7, 8, 12

##### 1.5 – Slopes of Secants and Average Rate of Change

##### 1.6 – Slopes of Tangents and Instantaneous Rate of Change

#### **Unit 2: Polynomial Equations and Inequalities**

##### 2.1 – The Remainder Theorem

- Pg. 91 # 2 (a,b), 3 (a,c,d), 9 (a,d), 10

##### 2.2 – The Factor Theorem

- Pg. 102 # 2, 6 (parts)

##### 2.3 – Polynomial Equations

- Pg. 110 # 1 (parts), 3 (parts), 6 (parts), 7 (parts), 8 (b,d),

##### 2.4 – Families of Polynomial Functions

- Pg. 120 #5, 7, 8, 9, 11, 12, 14, 15

##### 2.6 – Solve Factorable Polynomial Inequalities Algebraically

- Pg. 139 # 1 (parts), 2a, 4 (a,b), 7 (a,b,c)

### Unit 3: Rational Functions

#### 3.1 – Reciprocal of a Linear Function

- Pg. 153 # 1 – 3, 5, 6, 7 (c,d)

#### 3.2 – Reciprocal of a Quadratic Function

- Pg. 164 # 1 (a,c), 2 (a-e), 5 [a,c,e – omit v]

#### 3.3 – Rational Functions of the Form $f(x) = \frac{ax+b}{cx+d}$

- Pg. 174 # 6 (a,d,e)

#### 3.4 – Solve Rational Equations and Inequalities

- Pg. 183 #2 (b,d,e), 4 (a,c,e,f), 5 (a,c), 9 (b,c,d,f)

### Unit 4: Trigonometry

#### 4.1 – Radian Measure

- Pg. 208 # 5 - 8 (parts)

#### 4.2 – Trigonometric Ratios and Special Angles

- Pg. 216 # 2, 3, 5, 6, 7 (a,d), 8 (a,d), 16, 17, 18

#### 4.3 – Equivalent Trigonometric Expressions

#### 4.4 – Compound Angle Formulas

- Pg. 232 # 1 (a,c), 2 (b,d), 3, 4a, 5a, 6b, 7b, 8, 9

#### 4.5 – Prove Trigonometric Identities

### Unit 5: Trigonometric Functions

#### 5.1 – Graphs of Sine and Cosine Functions

- Pg. 258 # 3 (a,d), 4, 5 (a,b), 6, 7 (b,c), 9 – 11, 17

#### 5.3 – Sinusoidal Functions of the Form $f(x) = a\sin [k(x - d) + c]$ and $f(x) = a\cos [k(x - d) + c]$

- Pg. 275 # 1 (a,b,c,d), 2 – 6, 10b, 11a, 12a, 13a

#### 5.4 – Solve Trigonometric Equations

- Pg. 287 # 1 (a,b,c,d), 3, 7 (a,c), 9, 10, 14, 16, 18

## **Unit 6: Exponential and Logarithmic Functions**

### 6.1 – The Exponential Function and Its Inverse

- Pg. 318 # 1, 2, 5, 6

### 6.2 – The Logarithmic Function

- Pg. 328 # 1 (a,c,e,h), 2 (parts), 3 (parts), 4, 8 (parts), 10

### 6.3 – Transformations of Logarithmic Functions

### 6.4 – Power Law of Logarithms

- Pg. 347 # 1, 2, 4, 5 (parts), 6, 10

## **Unit 7: Tools and Strategies for Solving Exponential and Logarithmic Equations**

### 7.3 – Product and Quotient Laws of Logarithms

- Pg. 384 # 1 (b,c), 3 (a,c), 4 (c,d), 5 (c,d), 6, 7 (b,c,e)

### 7.1 – Equivalent Forms of Exponential Equations

- Pg. 368 # 4 (b,d), 5 (a,b), 6 (b,d)

### 7.2 – Techniques for Solving Exponential Equations

- Pg. 375 # 2 (parts), 3, 4, 8, 11 (c,d), 15

### 7.4 – Techniques for Solving Logarithmic Equations

- Pg. 391 # 1 (parts), 2 (parts), 3 (parts), 5, 6

## **Unit 8: Combining Functions**

### 8.1 – Sums and Differences of Functions

- Pg. 424 # 3, 5, 7, 8, 9

### 8.2 – Products and Quotients of Functions

- Pg. 435 # 4, 8, 9

### 8.3 – Composite Functions

- Pg. 447 # 1, 4, 9