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**MYP Honors Algebra II**

**MA 313/323**

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# Description

MYP mathematics courses help specifically to prepare students for the study of group 5 courses in the IB Diploma Program. Students will be provided the opportunity to see themselves as “mathematicians” as well as work on communicating their ideas in ways that allow others to understand their thinking. The MYP mathematics objectives and criteria have been developed with both the internal and external assessment requirements of the DP in mind. Students will be engaged in learning experiences that allow them to construct meaning about mathematics concepts, transfer this meaning to symbols and apply mathematical understanding in familiar and unfamiliar situations.

**MYP Aims**

The aims of MYP mathematics are to encourage and enable students to:

* enjoy mathematics, develop curiosity and begin to appreciate its elegance and power
* develop an understanding of the principles and nature of mathematics
* communicate clearly and confidently in a variety of contexts
* develop logical, critical and creative thinking
* develop confidence, perseverance, and independence in mathematical thinking and problem-solving
* develop powers of generalization and abstraction
* apply and transfer skills to a wide range of real-life situations, other areas of knowledge and future developments
* appreciate how developments in technology and mathematics have influenced each other
* appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics
* appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives
* appreciate the contribution of mathematics to other areas of knowledge
* develop the knowledge, skills and attitudes necessary to pursue further studies in mathematics
* develop the ability to reflect critically upon their own work and the work of others.

athematics in the MYP

**MYP Objectives**

The objectives of any MYP subject state the specific targets that are set for learning in the subject. They define what the student will be able to accomplish as a result of studying the subject. The objectives of MYP mathematics encompass the factual, conceptual, procedural and metacognitive dimensions of knowledge. Each objective is elaborated by a number of strands; a strand is an aspect or indicator of the learning expectation.  **Subject groups must address all strands of all four objectives at least twice in each year of the MYP.** Together these objectives reflect the knowledge, skills and attitudes that students need in order to use mathematics in a variety of contexts (including real-life situations), perform investigations and communicate mathematics clearly. These objectives will be assessed using an 8 point rubric.

**A. Knowledge and Understanding**

Knowledge and understanding are fundamental to studying mathematics and form the base from which to explore concepts and develop skills. This objective assesses the extent to which students can select and apply mathematics to solve problems in both familiar and unfamiliar situations in a variety of contexts.

In order to reach the aims of mathematics, students should be able to:

i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations

ii. apply the selected mathematics successfully when solving problems

iii. solve problems correctly in a variety of contexts.

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**B. Investigating Patterns**

Investigating patterns allows students to experience the excitement and satisfaction of mathematical discovery. Working through investigations encourages students to become risk-takers, inquirers and critical thinkers. The ability to inquire is invaluable in the MYP and contributes to lifelong learning.

In order to reach the aims of mathematics, students should be able to:

i. select and apply mathematical problem-solving techniques to discover complex patterns

ii. describe patterns as general rules consistent with findings

iii. prove, or verify and justify, general rules.

**C. Communicating**

Mathematics provides a powerful and universal language. Students are expected to use appropriate mathematical language and different forms of representation when communicating mathematical ideas, reasoning and findings, both orally and in writing.

In order to reach the aims of mathematics, students should be able to:

i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations

ii. use appropriate forms of mathematical representation to present information

iii. move between different forms of mathematical representation

iv. communicate complete, coherent and concise mathematical lines of reasoning

v. organize information using a logical structure.

**D. Applying Mathematics in Real-Lift Contexts**

Mathematics provides a powerful and universal language. Students are expected to use appropriate mathematical language and different forms of representation when communicating mathematical ideas, reasoning and findings, both orally and in writing.

In order to reach the aims of mathematics, students should be able to:

i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations

ii. use appropriate forms of mathematical representation to present information

iii. move between different forms of mathematical representation

iv. communicate complete, coherent and concise mathematical lines of reasoning

v. organize information using a logical structure.

**MYP Rubric – GRPS Grading Scale Correlation**

|  |  |  |  |
| --- | --- | --- | --- |
| **Percentage** |  **Rubric Scores** | **Letter** **Grade** | **Content Understanding** |
| 100%+ | 8 | A+  | Exemplary effort |
| 93-99% | A  | Outstanding level of effort |
| 90-92% | 7 | A-  |  |
| 87-89% | 6 | B+ | High level of effort |
| 83-86% | B |  |
| r80-82% | 5 | B- |  |
| 77-79%  | C+ | Acceptable level of effort |
| 73-76%  | 4 | C  |  |
| 70-72% | 3 | C- |  |
| 67-69% | 2 | D+ | Minimal level of effort |
| 63-66% | D  |  |
| 60-62% | 1 | D-  |  |
| 0-59% | 0 | E  | Unacceptable level of effort |

**Materials Needed**

##### TI-84 or TI-84+ graphing calculator

Three ring binder, Notebook, Paper, Pencils

*HMH Algebra 2 Textbook*

**Graphing Calculator Apps that may be useful at home**

* For an Android device, the TI-84 plus calculator can be found by searching “wabbitemu”
* For an Apple device, search “graphncalc83”
* **Under no circumstance can a cell phone, tablet, or other such device be used on assessments. Students must have a calculator for use at school.**

##### Units of Study

First Semester
Unit Topics

1 Functions

2 Quadratic Functions

3A Polynomial Expressions

3B Polynomial Functions

4 Rational Functions

5 Radical Functions

Second Semester

Unit Topics

6A Exponential Functions

6B Logarithmic Functions

8 Probability

8/9 Probability and Statistics

9 Statistics

7 Trigonometric Functions

##### Grading System

**Semester grades will be calculated as follows:**

**First Marking Period Grade: 45% of total**

**Second Marking Period Grade: 45% of total**

**Marking period grades are made up of the following**

District Assessments: 40% (IB Criterion Scores)

Teacher Created Assessments: 30% (quizzes, projects, activities)

Classwork and Homework: 20%

Practice and Participation: 10%

**Final Exam Grade: 10% of total**

# Grading Scale

100%+ A+

93-99% A

90-92% A-

87-89% B+

83-86% B

80-82% B-

77-79% C+

73-76% C

70-72% C-

67-69% D+

63-66% D

60-62 D-

below 60% E

**Assignment Scores**

* Students will be given assignments on a regular basis. **Assignments are due the following class period** **as students enter the room** unless directed otherwise. Most assignments are worth 10 points. Students will receive all 10 points if their work is neat, complete, and shows their best effort.
* Every time homework is due, there is a possibility a homework quiz (worth 10 additional points) will be given. Students will receive all 10 points if their work is neat, complete, and ***accurate*.**
* Late assignments will count no more than 50% of the student’s grade and must be completed before the **final assessment for that unit**.
* Other late work, such as projects and activities will be given a grade reduction of 10% per day with a maximum reduction of 50%

**Expectations of Students**

Students are expected to learn and adhere to all of the following procedures

**Procedures before the bell**

- Come to class prepared and bring all materials everyday

- Come to class on time and use a quiet voice when communicating with others

- Follow instructions posted on the board – start class without being asked

**Procedures during class**

* Mentally engage and focus on class work
* Do not use cell phones or other electronic devices unless the instructor says it is permissible
* Actively participate in all class activities in appropriate ways

**Procedures for communication**

* Please refer to staff in a respectful way using Mr. or Ms.
* Please raise your hand to ask a question. No outbursts
* Speak to everyone with respect. Encourage each other.
* Wait until an appropriate time to ask personal questions

**Procedures for the end of class**

* Quietly pack up at an appropriate time
* Clean up your working environment and throw away your trash
* Push in your chair and leave when the bell rings

**Procedures for quizzes and tests**

* Questions regarding test questions and content will not be answered. I can, however, clarify the directions if needed.
* Quizzes and tests are timed and must be finished during class
* No talking or electronic devices will be allowed
* If a student has an excused absence the day of a quiz or test, arrangements must be made with the instructors to make it up after school. It is the student’s responsibility to initiate all conversations regarding make up tests, and the student’s responsibility to arrive at the mutually agreed upon time and location.
* There are no retakes on any assessment. Students will have multiple grades in each category and will have opportunities to improve their scores.

**Please share this with a parent/guardian and fill out the portion below. Return this by Monday, August 26th for a 10 point assignment grade.**

Dear Parents and Guardians,

My name is Aaron Fillenworth and your child is enrolled in my Algebra II class for the 2019/2020 school year at City High Middle School. I graduated from Aquinas College in May 2008 with a Bachelor of Science degree in Mathematics and a minor in Business Administration. I also achieved a Master of Arts degree in the Practice of Teaching from Western Michigan University in 2016. I completed my student teaching at City during the 2013-2014 school year and for the past 5 years I have taught 6th, 7th and 8th grade math at Fruitport Middle School.  I am beyond excited to be back at City and will be teaching 7th grade math and Algebra II. I am looking forward to going to work/school every day!

**It is necessary that students have a TI 84 or TI 84+ graphing calculator for this and future math courses.** All of our Diploma Programme math classes use this calculator so it will be put to good use for the next three years at least. If you do not already own one, they can be purchased new or used.If you do not wish to purchase one, the school has a limited number in the media center that are checked out on a first come first served basis. The procedures and policies for this are the same as checking out textbooks. Students are responsible for suppling their own batteries.

There are a number of apps that students have found useful in the past. For an Android device, the TI-84 plus calculator can be found by searching “wabbitemu”. This works exactly the same as the calculators we use at school. For an Apple device, search “graphncalc83”. While these devices are nice for use at home, students must have a calculator for use at school. Under no circumstance can a cell phone, tablet, or other such device be used on assessments.

Please fill out the information below so I can contact you if I need to. Also feel free to contact me if you have any questions or concerns. The best way to reach me is email. (fillenwortha@grps.org). Thank you and I look forward to working with you and your students this year. Aaron

Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent/Guardian Name(s)

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Email(s)

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Phone number(s)

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Signature(s)

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The best way to reach me is to…

 \_\_\_ Call \_\_\_ Call

 \_\_\_ Text \_\_\_ Text

 \_\_\_ Email \_\_\_ Email

 \_\_\_ Other (describe) \_\_\_ Other (describe)