

# Hillel Academy High School



## Grade 10 Mathematics End of Year Study Guide September 2013 - June 2014

Examination	Date
The exam consists of <u>2 papers</u> :	
<u>Paper 1</u> :    Structured Response                      1 hour 30 minutes	June 2014
<u>Paper 2</u> :    Structured Response                      2:30 hours	
<i>*Calculators can be used in both papers</i>	

Use your textbook, teacher's website and any Mathematics websites to review all the areas outlined below. Ensure sufficient practice for each area until you are comfortable with all requirements. Check with your teacher for additional clarifications for areas of difficulties.

### How to study:



- ✓ Start now! Do not wait until exam week!

- ✓ Plan your study time systematically. Set aside at least 40 minutes every day to revise and practice mathematics.



- ✓ Read the notes in your text book and practise some of the "Review Set" questions at the end of each chapter. (The answers are at the end of the book, so that you can check that what you are doing is right.)

- ✓ Make sure that you understand and can apply all mathematical vocabulary.



- ✓ Remember that the showing of all working is very important. Many of the questions will be worth more than one mark. ***You will only be awarded full marks if all your work is set out clearly and ALL work is shown.***

- ✓ Use your own exercise book(s) to help you revise. Go over your own work. Look at the mistakes you have made. Do you know how to do this work correctly now? If not, ask your teacher for help.

<b>GRADE 10 – TERM 1</b>	
TOPIC	CONTENT/ LEARNING OUTCOMES
UNIT 1 ALGEBRA 1	<ul style="list-style-type: none"> <li>• Introduction (REVISION) –definition, order of operations, the four basic operations.</li> <li>• Review of H.C.F. grouping distributive law, factorizing, algebraic fractions and expressions.</li> <li>• Solving equations with unknown in the index.</li> <li>• Solving linear equations and inequations including worded problems.</li> <li>• Solving quadratics using formula and by completing the square.</li> </ul>
UNIT 2 VARIATION	<ul style="list-style-type: none"> <li>• Direct variation</li> <li>• Indirect variation</li> </ul>
UNIT 3 FUNCTIONS, RELATIONS & GRAPHS	<ul style="list-style-type: none"> <li>• Function notation</li> <li>• Computations, inverse and composite functions</li> <li>• Table of values</li> <li>• Review of drawing and interpreting linear graphs</li> <li>• Introduction to different types of graphs – quadratics, cubic, reciprocal, exponential, kinematics</li> <li>• Draw and interpret graphs – gradient, distance travelled, +/- acceleration, turning points</li> <li>• Solving linear and quadratic equations graphically</li> </ul>
<b>GRADE 10 –TERM 2</b>	
UNIT 4 MENSURATION	<ul style="list-style-type: none"> <li>• Review areas of plane shapes</li> <li>• Find areas of triangles – using semi-perimeter formula and the sine formula</li> </ul>

	<ul style="list-style-type: none"> <li>• Volume and Surface areas of Solids</li> <li>• Solve Problems involving length of arcs and areas of sectors</li> </ul>
UNIT 5 LOCUS	<ul style="list-style-type: none"> <li>• Locus of a point</li> <li>• Intersecting Loci of a set of points in 2-D <ul style="list-style-type: none"> <li>○ At a given distance from a given point</li> <li>○ At a given distance from a given straight line.</li> <li>○ Equidistant from two given points</li> <li>○ Equidistant from two given intersecting straight lines.</li> </ul> </li> </ul>
<b>GRADE 10 - TERM 3</b>	
UNIT 6 TRIGONOMETRY	<ul style="list-style-type: none"> <li>• Revision: Pythagoras, Trig ratios, angle of elevation and depression</li> <li>• Bearings</li> <li>• Sine and Cosine rules</li> <li>• Area of triangle using <math>\frac{1}{2} ab \sin C</math></li> <li>• Solve simple trigonometrical problems in three dimensions including angle between a line and a plane</li> </ul>
UNIT 7 MATRICES	<ul style="list-style-type: none"> <li>• Types of Matrices</li> <li>• Matrix operations</li> <li>• Inverse Matrices</li> <li>• Determinants</li> </ul>
UNIT 8 TRANSFORMATIONS	<ul style="list-style-type: none"> <li>• Perform: <ul style="list-style-type: none"> <li>○ Translation given translation vector</li> <li>○ Reflection given the mirror line.</li> <li>○ Rotation given centre, direction and angle of rotation</li> <li>○ Enlargement given scale factor and centre of enlargement.</li> </ul> </li> <li>• Identify and describe simple transformations and their combinations</li> <li>• Transformation using matrices</li> </ul>