**OUTLINE FOR QUADRATICS: quadratic EXPRESSIONS+EQUATIONS + FUNCTIONS + MODELLING**

**Wednesday, 8th of December & Thursday, 9th of December**

1. **Quadratic Algebra**
   1. Factorizing:
      1. Choose your method. But get it right!!!!
   2. Solve quadratic equations:
      1. By factoring
      2. **CALCULATOR!!!!!!!!**

Know all these for every form: Standard, Vertex and Factor

1. **Quadratic Functions**
   1. Know how to find the y-int. and the x-int (if any)
   2. Know how to find the Axis of Symmetry: **NOTE you need to give**

**the equation of the AoS. Answer should always be x=…..**

* 1. Know how to find the Vertex. Make sure you answer the question correctly. It all depends of what they ask.
  2. Know how to state the Domain and Range of the Parabola (basically max. or min.)
  3. Know how to graph/sketch any parabola
  4. Know how to find the equation of any graphed parabola. Most likely, they will give you part of it already.

1. **Quadratic Modelling: Below are some typical examples.**
   1. Area of a rectangle
      1. You will always have to find the length of one of the sides in terms of the other length (usually called x)

These are just some examples. There could be others

* + 1. Show how the Area is a function of the length🡪 A(x)
    2. Find the dimensions of the shape for the maximum area
    3. Find the maximum area
  1. Profit
     1. Find the function for profit in terms of x🡪 P(x) by doing Income/Revenue – Cost
     2. Find the maximum Profit and how many items need to be sold/produced for that profit.
  2. Path an object thrown in the air
     1. Given the function of Height in terms of time. 🡪 H(t), find maximum height
     2. Find when does the object reach the maximum height
     3. Find when it hits the ground again….(Hint: second x-intercept)