FORMULAE + KEY INFORMATION

Quadratic Functions ($y = ax^2+bx+c$)

- > A guadratic function will usually have $x^2 x$ has to be to the power of something for a function to be quadratic
- > General layout will likely be: y=ax²+bx+c (this will not always apply though!)



Linear Functions (y = a + bx)

- > Linear functions are functions that **include x without any powers**, this will include multiplying and dividing by x as well as getting x^2 after expanding brackets
- > A linear function will always construct a straight line intercept of x-axis is found by setting x=0 and intercept of y-axis can be found by substituting y to y=0
- > Slope (b) = $\Delta y / \Delta x$ [change in y/change in x]
- > Intercept (a) = y bx because y = a + bx
- > To sketch a linear equation, make use of intercept and provided co-ordinates (possibly calculate x intercept too)

Break-Even (cost follows a linear pattern i.e. straight line!)

ale.co.uk R=C > be rearranged from R=C to this format Data provided in the $ax^{2}+bx+c=0$ equation will give the two interception points of the revenue and cost curves – showing the range of output that leads to profit

Exponent and Logarithm

- > e and ln are opposites they cancel one another out
- Exponent (e)

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>
Example:
AC = 10 + e^{(2 - 0.05Q)}
                       what is Q when AC=12.5?
12.5 = 10 + e^{(2-0.05Q)} =
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Logarithm $(ln \text{ is } \log_{e})$

- > 2 key points:
 - > Interesting slope – never levels off just gets less and less steep
 - Useful for solving a number of equations >
- > If *ln* is being taken away from ln divide them e.g. $75 \ln -5 \ln = 15 ln$
- > If *ln* is being added to ln multiply them e.g. $5 \ln + 5 \ln = 25 ln$
- > Example:
 - P = 15ln(750B + 1500) 150 what is B when P=0?
 - $0 = 15 \times ln(750B + 1500) 150$