

IB Higher Maths – the implications

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Some Background

- Running A-level and IB side by side for 8 years
- Typically have 100 students taking A-level maths, 12 taking Further Maths, 6 Higher IB, 12 Standard IB, 30 Studies IB.
- Bright students who would get an A (or even an A*) at A-level get 5 at Higher IB.
- Impact on university admissions

Higher Maths is Hard

- Higher Maths is 1.1-1.2 the size of A-level (UCAS)
- Universities tend to use 6=A (anecdotal)
- 4% of IB students get 6 or 7 in Higher Maths
- 12% of IB students get a 4 or above in Higher Maths
- 4% of A-level students get an A* in A-level Maths
- 12% of A-level students get an A or A* in A-level Maths
- The Comparative Difficulty of Higher Mathematics on the International Baccalaureate:
Teaching Mathematics and its Applications.
Handscombe 2013

There's more than content

- MATH Taxonomy: Group A,B,C
- Routine Use of Procedures: Group A

Find the gradient of the curve $x^2+xy+y^2=3$
at the point $(-1,-1)$

- Application In a New Situation: Group B

The curve C has equation $2x^2 + y^2 = 18$.
Determine the coordinates of the four points on C
at which the normal passes through the point $(1, 0)$.

Higher Maths is Hard

Exam paper	% Group A	% Group B	% Group C
Higher IB	55.8%	38.3%	5.8%
Standard IB	92.2%	7.8%	0
C1	93.1%	6.9%	0
C4	77.8%	22.2%	0
FP2	66.7	33.3	0

Based on one paper of each type (A-level papers from OCR)

Conclusions

- IB Higher exam questions are a better preparation for Higher Education than A-level (even Further Maths).
- 5 on IB Higher is as hard to achieve as A at A-level Maths.
- Standard Maths has more straightforward questions (but high level content).
- Mechanics is in Standard Physics – not Maths.

Next Steps

- Complete complexity research for publication (other boards, more papers).
- Topic comparisons are difficult.
- A-level is being reviewed – could more complex questions be asked?
- Will universities re-evaluate grades in Higher Maths?