Example 46: Robotic arm

Subject: Mathematics: analysis and approaches and mathematics: applications and interpretation
Paper component: Internal assessment, standard level (SL) and higher level (HL)

Assessment

Criterion	A	B	C	D	E (SL)	E (HL)	Total (SL)	Total (HL)
Achievement level awarded	3	3	3	3	6	5	18	17
Maximum possible achievement level	4	4	3	3	6	6	20	20

Comments

Criterion	Comments
A Presentation	The exploration is very well written, and is concise given its complexity. The candidate managed to present the work to address the target audience at all times. There was a little incoherence by numbering steps and explaining processes before working. "Best fit" was used to award A3.
B Mathematical communication	The exploration has abundant forms of appropriate mathematical communication; however, there were some minor errors, which precluded awarding the top mark. These included writing a coefficient of sine and cosine immediately after the angle, sometimes without brackets, and also having trigonometric notation italicized.
C Personal engagement	The candidate took ownership of the work, which is clearly explained throughout keeping in mind the target audience. There are many instances where creative thinking and thoughtful problem-solving techniques are in evidence.
D Reflection	In spite of the fact that most of the reflection is seen towards the end of the exploration, this is very thorough and shows clear understanding of the outcomes and implications of the results.
E Use of mathematics SL	
E Use of mathematics HL	The mathematic used in relevant and commensurate with the level of the course. Thorough knowledge and understanding is shown throughout. The mathematics is unfortunately not precise due to an error on page 10, but the follow-through work is fine. The mathematics is used in a sophisticated manner.
General comments	This is an example that shows how a candidate need not go beyond the syllabus content to produce and excellent piece of work that deserves the top mark in Criterion E.