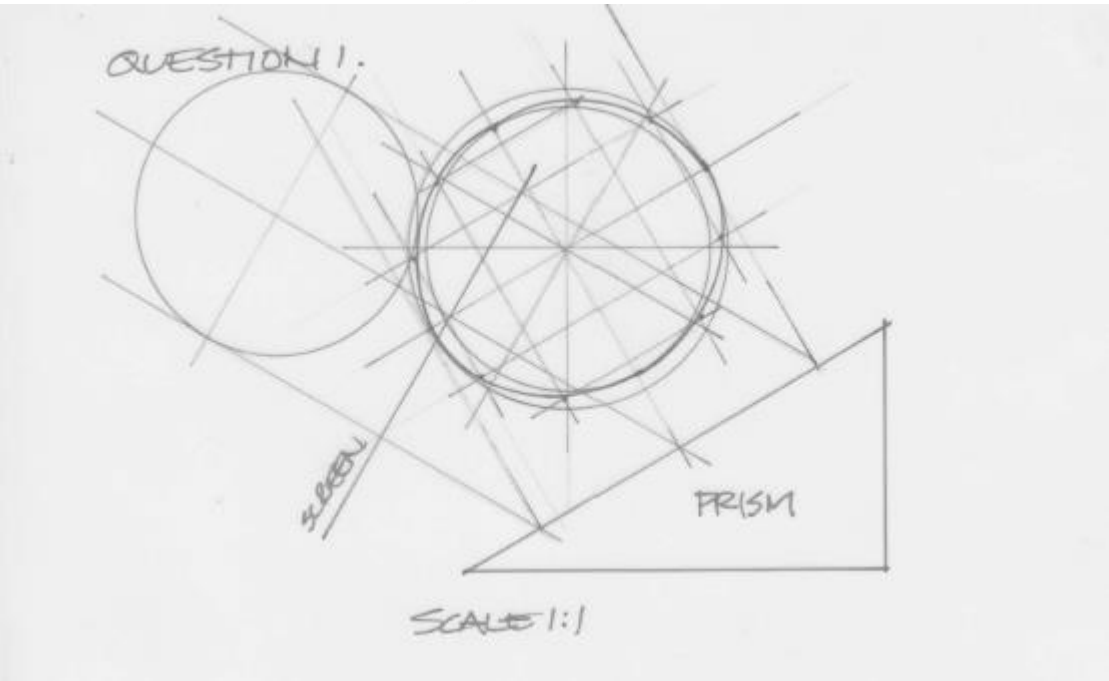
TECHNICAL GRAPHICS (TEG315115)

GENERAL COMMENTS

As with previous years there was a trend showed that generally criterion 2 scored higher than criterion 3. Candidate's results ranged from very low to very high scoring for both criteria. A noticeable change from previous years was the lack of "middle level" scores. There was a definite grouping at both ends of the array of scores for both criteria.

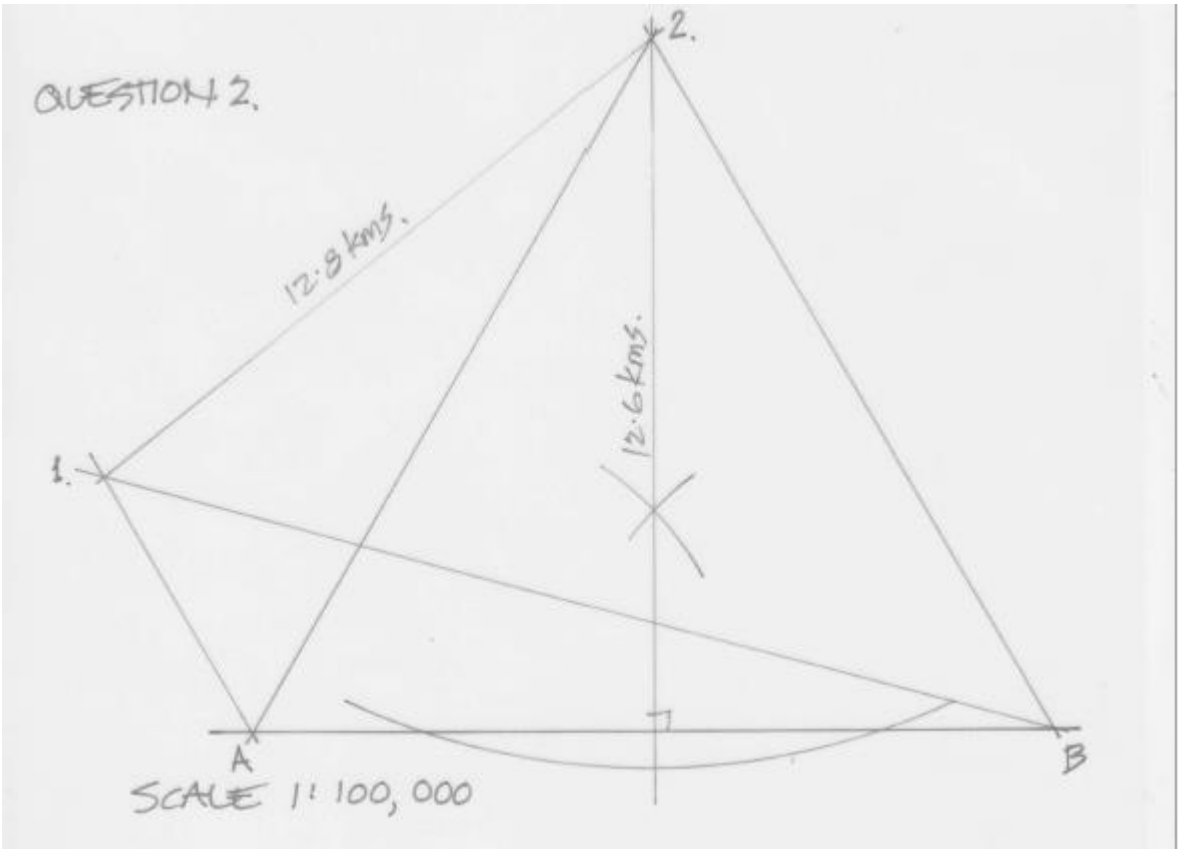
QUESTION 1

This compulsory question was answered by almost all students, with a range of success from many having little understanding of the question to a full and complete answer by only a few students.



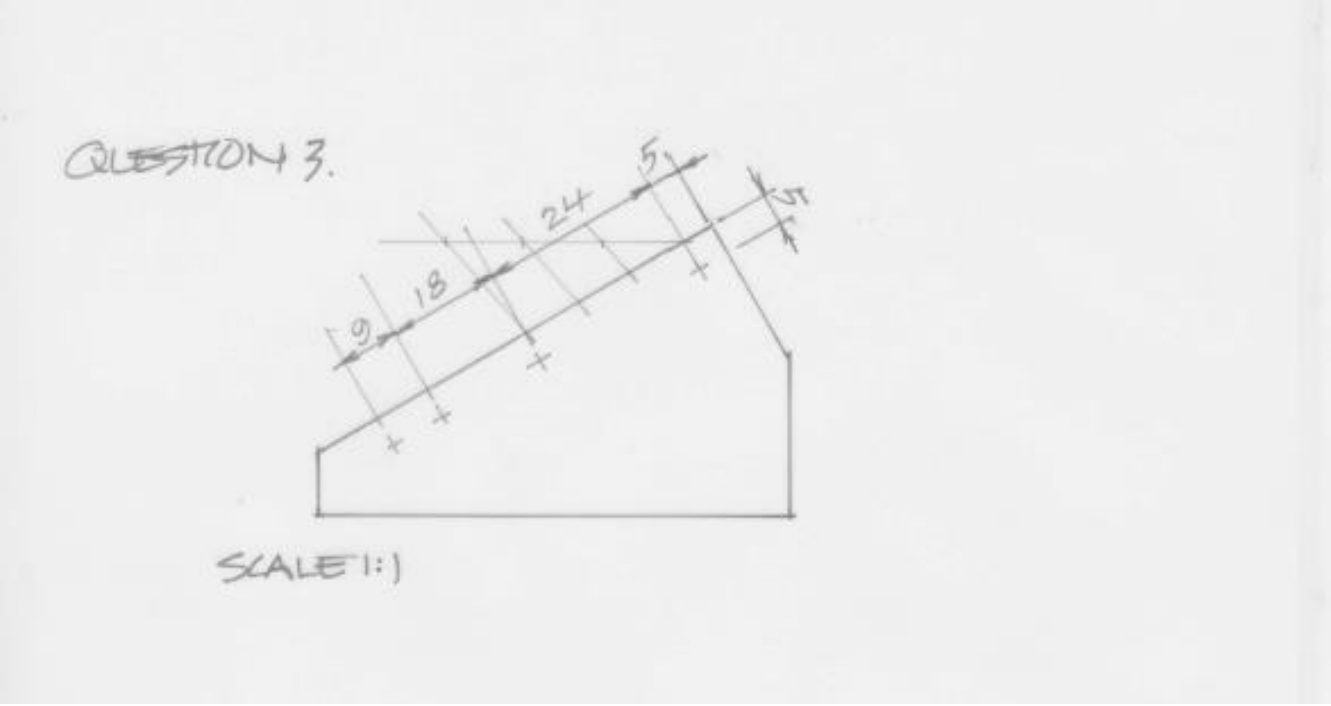
QUESTION 2

This compulsory question was completed by most students correctly demonstrating their understanding of the problem. Several students assumed an incorrect angle for the starting point not realising that the angles provided were compass points using the Cardinal direction system. Some students appeared to assume the angle starting point reflected the common angle starting point as found as defaults in CAD programs. The distances found were generally correct.



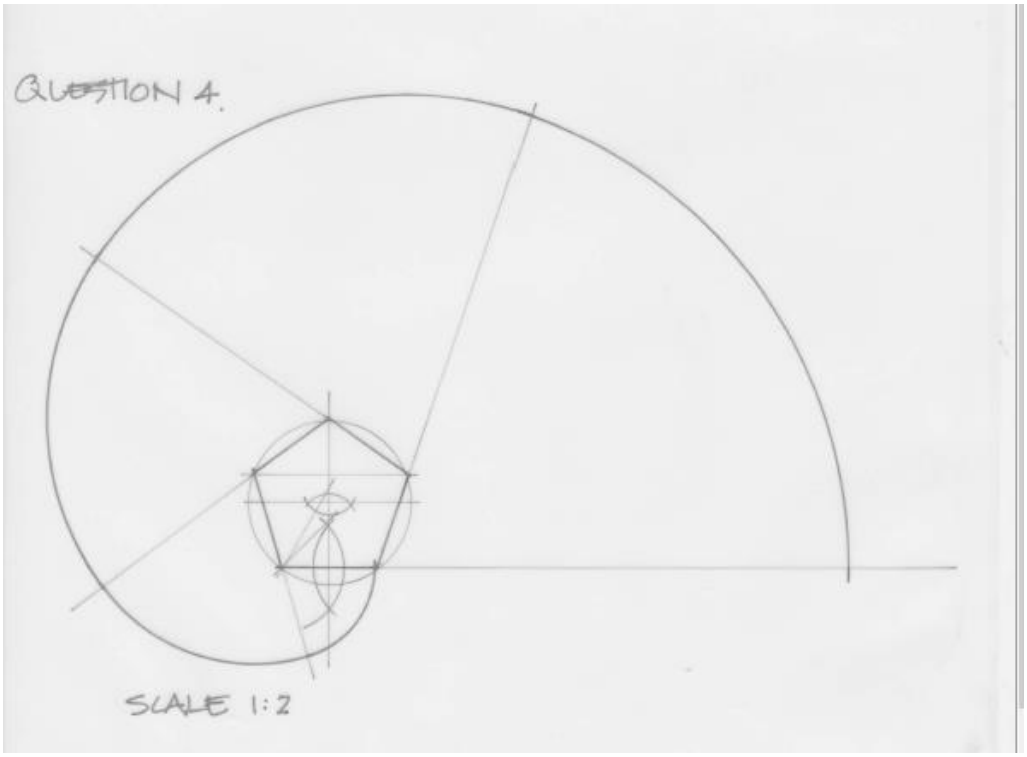
QUESTION 3

Most students drew the plate correctly but few managed to correctly position all the holes on the plate. Those who did well recognised that line division was necessary to complete the problem. Another compulsory question.



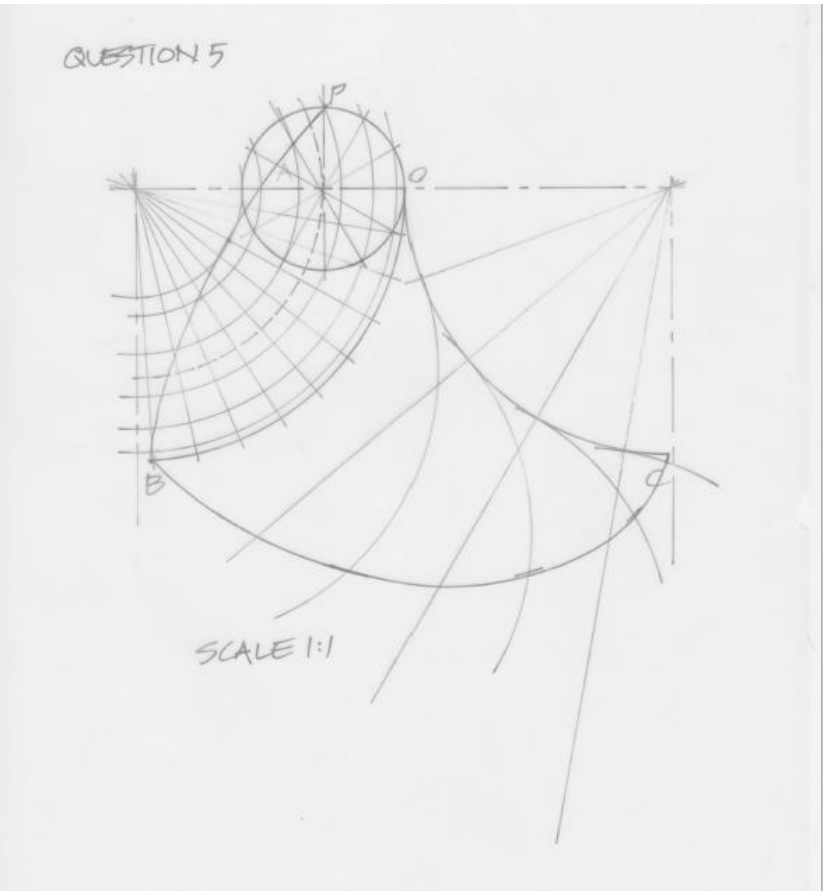
QUESTION 4

The last of the compulsory questions. This question was completed well by nearly all students. Some missed one of the extensions/spokes/segments of the involute and created a slightly different shape, this can happen with lack of concentration or rushing to finish. Nearly all students used the correct method of construction for the pentagon.



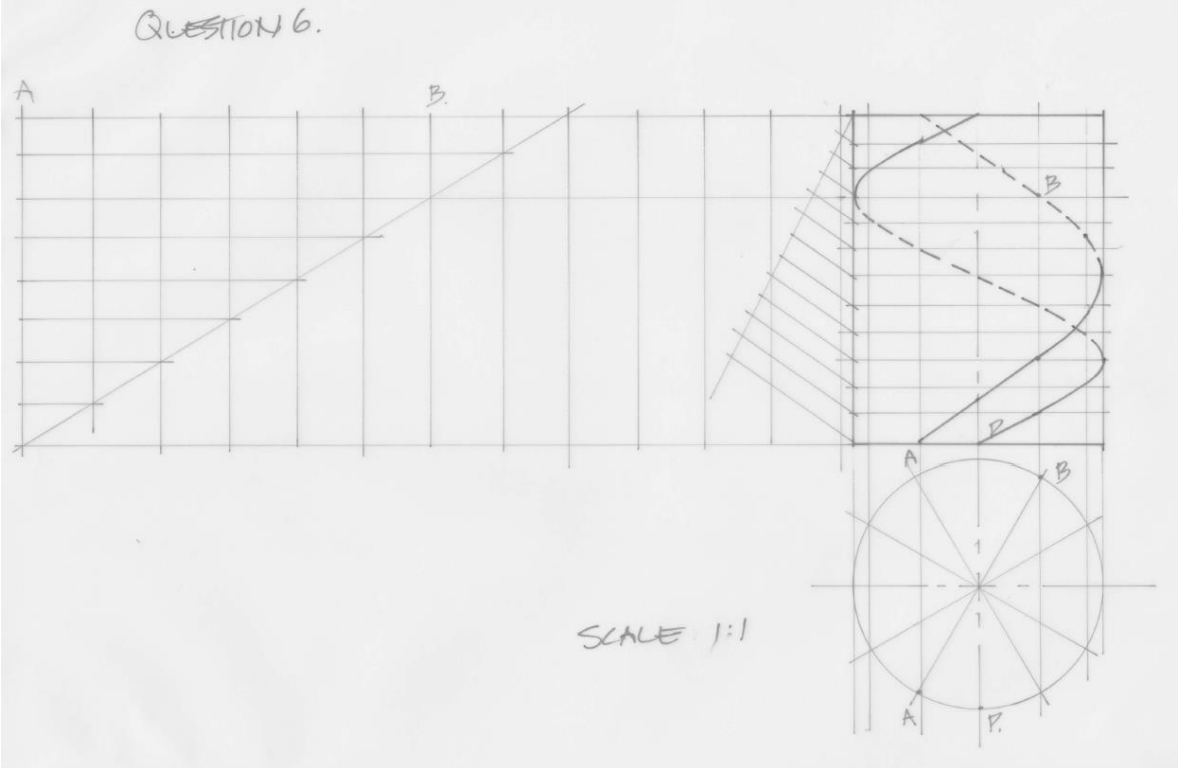
QUESTION 5

Very few students attempted this question with only one student partially resolving the problem.



QUESTION 6

The great majority of students attempted this question with most answers being correct. Several solutions were possible with the majority of students completing part B using a variety of pitches.

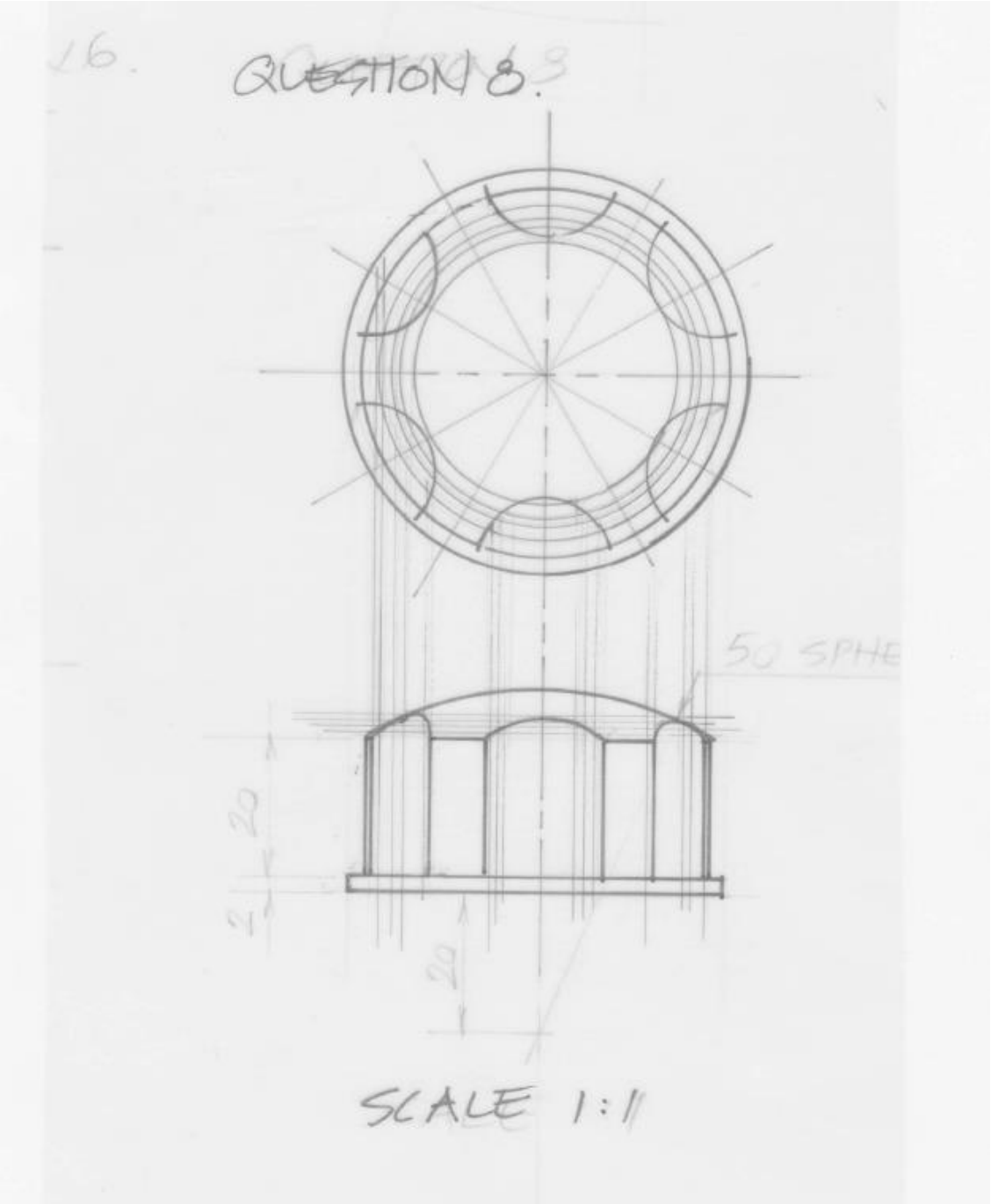


QUESTION 7

Only two students attempted this question. Neither of them sketched the mechanism but simply drew a displacement graph which appeared to relate more to the Cam theory in the course instead of addressing the problem as outlined in the question.

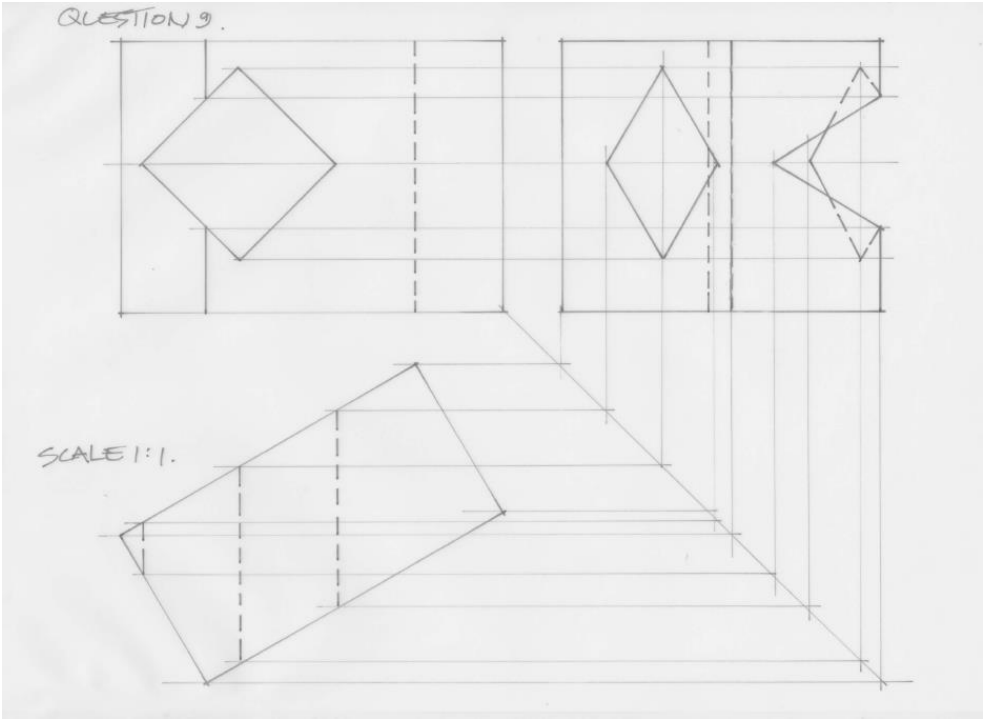
QUESTION 8

Very few students attempted this question and no student fully resolved the problem. Some efforts used a set radius for the curves showing a lack of understanding of the actual problem type.



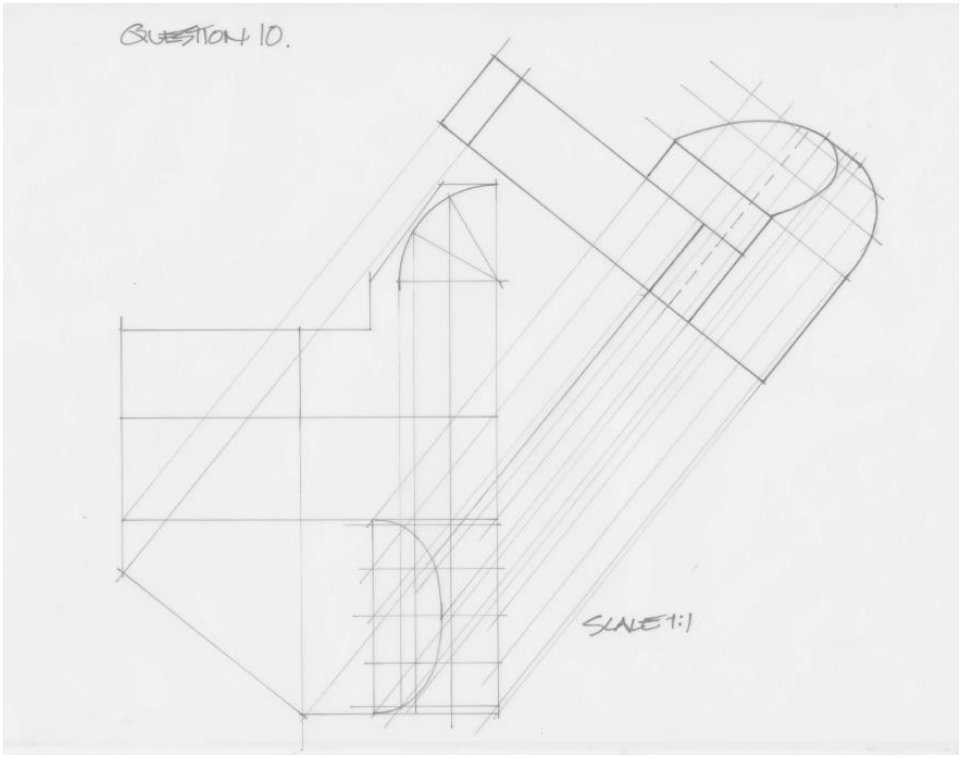
QUESTION 9

Most students attempted this question with very few getting even close to a fully resolved answer. Several students made errors by not fully recognising orthographic projection was needed and thus their positioning of the elevations was not correct.



QUESTION 10

Many students attempted this question but only a few students fully completed the auxiliary view to show the true shape of A. Many students simply constructed the shape of A without the auxiliary view.



FOLIOS

GENERAL COMMENTS

Most folios lacked correct in text referencing. Many folios lacked correct dimensioning, some folios had no dimensioning at all. Some folios appeared to create a CAD model and then draw the manual drawings later for the design work. One folio had a comment from the student that they had spent too much time creating the CAD model leaving little time to do the manual drawings! Some folios did not address their own brief, the work lacking relevance to the brief and aims.

There was a lack of "rough work" or sketch book usually in an A4 or similar book or loose leaf in plastic folders. This work is essential to show the development of the project. Some folios arrived to be marked as finished work with no actual design work evident.

CRITERION 4

Many folios were lacking correct dimensioning standards. Metres were used instead of millimetres. Dimensions were not laid out correctly around the drawings. A few folios had correct dimensioning. There was a lack of range of sketches to correctly show detail in drawings. CAD programs were often not changed in their settings to reflect Australian standards, some folios had all their dimensions in feet and inches. This acceptance of the CAD defaults needs to be addressed, the supervising teachers should be checking the work and ensuring that these basic changes are made. A small number of folios had complied well to the standards for both manual drawing and CAD content.

CRITERION 5

There was a large range in the marking for this criterion compared to both the other criteria. In some cases the CAD content exceeded the specified amount by a great deal, there being a lack of manual drawings or very poor quality in manual drawings. As mentioned above many CAD presentation techniques focused on one 3d model which was presented as the perspective view, then moved around a little to look like the orthographic views, still showing 3d'ness which is not correct for orthographic views. Section drawings using CAD also had 3d'ness. The amount of work that is needed to produce these views using the CAD model is very much less than using manual drawing methods. Most of the heavily biased to CAD folios had no actual "working drawings" to show how the product could be manufactured or built. Most folios were presented in A3 format as opposed to the traditional A2 paper format.

CRITERION 6

A few folios completed this section very well. Many folios lacked concept ideas essential to show the design development from the beginning through to the final designs. This lack of design work shows a lack of problem solving happening in the folio. Many folios had a large number of research pictures with only a few being relevant to the design brief and aims of the project. Few folios had correct in text referencing completed. Every folio had a design brief and an evaluation both being essential of course but sometimes missing in past years. This is an improvement this year.