NSW Education Standards Authority

2022 **HIGHER SCHOOL CERTIFICATE EXAMINATION**

Mathematics Extension 1

General Instructions

* Reading time -- 5 minutes
* Working time -- 60 minutes
* Write using black pen
* Calculators approved by NESA may be used
* A reference sheet is provided at the back of this paper
* For questions in Section II, show relevant mathematical reasoning and/or calculations
* Write your Centre Number and Student Number on all Writing Booklets attached

Total marks:
35

Section I -- 5 marks

* Attempt Questions 1-5
* Allow about 5 minutes for this section

Section II -- 30 marks

* Attempt Questions 6-7
* Allow about 55 minutes for this section

Section I

5 marks
Attempt Questions 1--5
Allow about 5 minutes for this section

Use the multiple-choice answer sheet for Questions 1--5.

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1. Given that the vector OP> = (4, -4) and the vector OQ> = (2, 5), what is the vector PQ>?

(A) (-2, 9)

(B) (0, -2)

(C) (4, -5)

(D) (6, 1)

2. The polynomial $x^3 - 3x^2 - 18x + 40$ does not have a root at which value of x?

(A) 2

(B) 5

(C) -4

(D) 1

3. Given that the vector OP> = (-3, 3) and the vector OQ> = (-2, 5), what is the vector PQ>?

(A) (-3, 2)

(B) (-5, 8)

(C) (1, 2)

(D) (0, -2)

4. What is the remainder when the polynomial $x^3 - 5x^2 - 16x + 80$ is divided by $x - 3$?

(A) 19

(B) 10

(C) 14

(D) 18

5. The polynomial $x^3 - 5x^2 - 9x + 45$ does not have a root at which value of x?

(A) 5

(B) 3

(C) -3

(D) 1

Marking Guide

5 marks
Questions 1--5

Question	Answer
1	A
2	D
3	C
4	C
5	D