4.2 Matrices and Geometric Transformations: 10-minute Pack

Total Marks

AQA 8365 · Calculator allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A = [[3, 0], [-2, 5]] and B = [[1, 4], [6, -3]].

(a) Find 3A - 2B. **(3)**

(b) X is a matrix such that X + B = A. Find X. **(2)**

(Total for Question 1 is 5 marks)

2 Triangle T has vertices A(2, 1), B(4, 1) and C(4, 3).

(a) Write down the matrix that represents a reflection in the x-axis. **(1)**

(b) Write down the matrix that represents a reflection in the line y = x. **(1)**

(c) Find the coordinates of the image of triangle T after a reflection in the y-axis. **(3)**

(Total for Question 2 is 5 marks)

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Mark scheme · 4.2 Matrices and Geometric Transformations: 10-minute Pack

Question 1

(a) finds 3A = [[9, 0], [-6, 15]]	**M1**
(a) finds 2B = [[2, 8], [12, -6]]	**M1**
(a) [[7, -8], [-18, 21]] cao	**A1**
(a) Answer: [[7, -8], [-18, 21]]	
(b) rearranges to X = A - B	**M1**
(b) [[2, -4], [-8, 8]] cao	**A1**
(b) Answer: [[2, -4], [-8, 8]]	

Question 2

(a) [[1, 0], [0, -1]] cao	**B1**
(a) Answer: [[1, 0], [0, -1]]	
(b) [[0, 1], [1, 0]] cao	**B1**
(b) Answer: [[0, 1], [1, 0]]	
(c) uses the reflection matrix [[-1, 0], [0, 1]] or the mapping (x, y) -> (-x, y)	**M1**
(c) at least two correct image vertices	**A1**
(c) A'(-2, 1), B'(-4, 1), C'(-4, 3) cao	**A1**
(c) Answer: A'(-2, 1), B'(-4, 1), C'(-4, 3)	

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