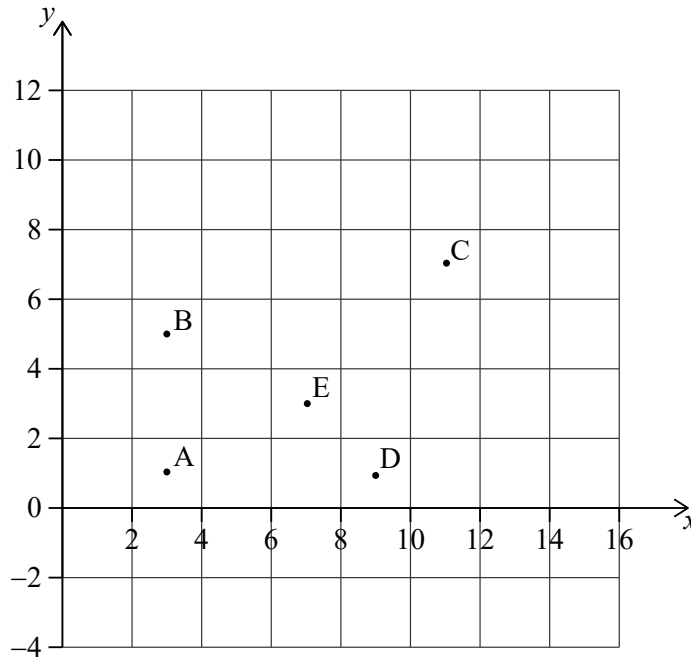


4. [Maximum mark: 6]

Points A(3, 1), B(3, 5), C(11, 7), D(9, 1) and E(7, 3) represent snow shelters in the Blackburn National Forest. These snow shelters are illustrated in the following coordinate axes.

Horizontal scale: 1 unit represents 1 km.

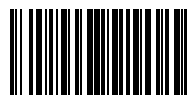
Vertical scale: 1 unit represents 1 km.



(a) Calculate the gradient of the line segment AE.

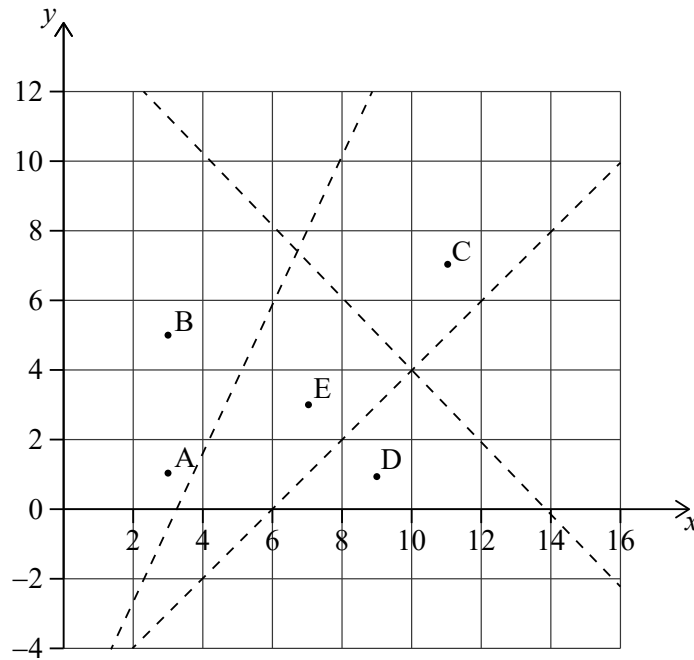
[2]

(This question continues on the following page)



(Question 4 continued)

The Park Ranger draws three straight lines to form an incomplete Voronoi diagram.



- (b) Find the equation of the line which would complete the Voronoi cell containing site E. Give your answer in the form  $ax + by + d = 0$  where  $a, b, d \in \mathbb{Z}$ . [3]
- (c) In the context of the question, explain the significance of the Voronoi cell containing site E. [1]

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