4 A team of 8 people is to be formed from 6 teachers, 5 doctors and 4 police officers.

(a) Find the number of teams that can be formed. [1]

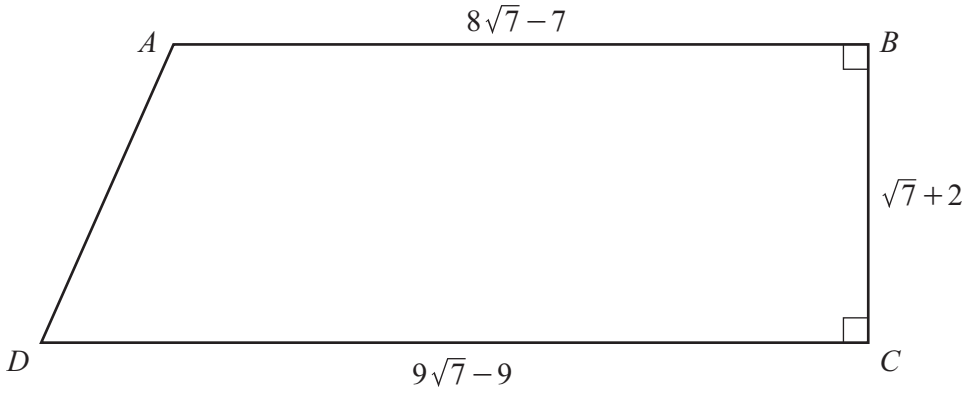
(b) Find the number of teams that can be formed without any teachers. [1]

(c) Find the number of teams that can be formed with the same number of doctors as teachers. [4]

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5 DO NOT USE A CALCULATOR IN THIS QUESTION.

In this question, all lengths are in centimetres.



The diagram shows the trapezium $ABCD$. The lengths of AB, BC and CD are $8\sqrt{7}-7$, $\sqrt{7}+2$ and $9\sqrt{7}-9$ respectively. The line BC is perpendicular to the lines AB and CD.

(a) Find the perimeter of the trapezium, giving your answer in its simplest form. [3]

(b) Find the area of the trapezium, giving your answer in the form $p\sqrt{7}+q$, where p and q are rational numbers. [3]

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