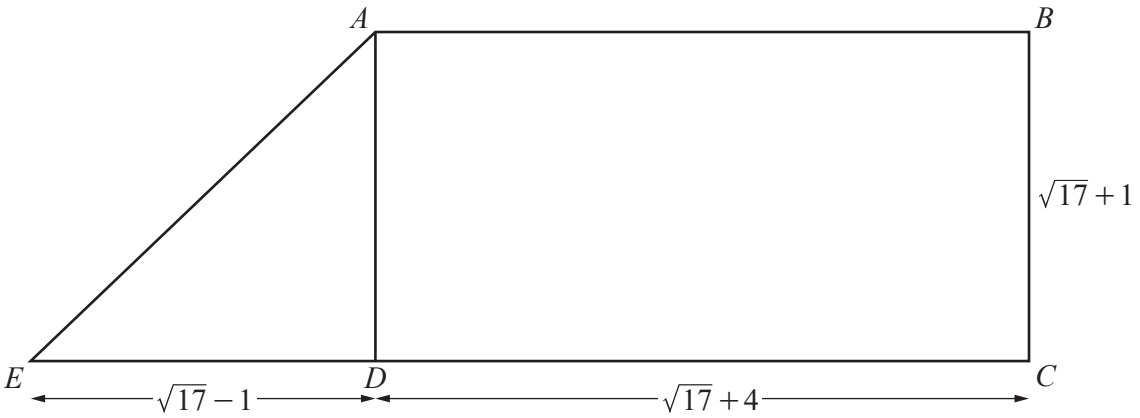
7 DO NOT USE A CALCULATOR IN THIS QUESTION

In this question all lengths are in centimetres.



The diagram shows a trapezium $ABCDE$ such that AB is parallel to EC and $ABCD$ is a rectangle. It is given that $BC = \sqrt{17}+1$, $ED = \sqrt{17}-1$ and $DC = \sqrt{17}+4$.

(a) Find the perimeter of the trapezium, giving your answer in the form $a+b\sqrt{17}$, where a and b are integers. [3]

(b) Find the area of the trapezium, giving your answer in the form $c+d\sqrt{17}$, where c and d are integers. [2]

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(c) Find $\tan AED$, giving your answer in the form $\frac{e+f\sqrt{17}}{8}$, where e and f are integers. [2]

(d) Hence show that $\sec^2 AED = \frac{81+9\sqrt{17}}{32}$. [2]