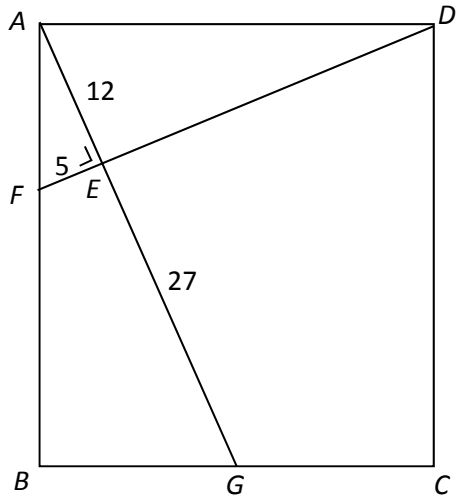
Question 5 **(25 marks)**

$ABCD$ is a rectangle.

$F \in [AB]$, $G \in [BC]$, $[FD] \cap [AG] = \{E\}$, and $FD \perp AG$.

$|AE| = 12$ cm, $|EG| = 27$ cm, and $|FE| = 5$ cm.



(a) Prove that ΔAFE and ΔDAE are similar (equiangular).

(b) Find $|AD|$.

(c) ΔAFE and ΔAGB are similar. Show that $|AB| = 36$ cm.

(d) Find the area of the quadrilateral $GCDE$.