Problem of the Week
Problem E
Parallelogram Askew

Parallelogram $PQRS$ is positioned such that $P$ lies on the positive $y$-axis, $S$ lies on the positive $x$-axis, and $Q$ and $R$ lie in the first quadrant.

If vertices $P$, $Q$, and $S$ are located at $(0, 30)$, $(k, 50)$ and $(40, 0)$, respectively, and the area of $PQRS$ is $1340$ units$^2$, determine the coordinates of $Q$ and $R$. 