Problem of the Week
Problem E
Positioned Differently

Often we draw parallelograms so that two of the sides are either horizontal or vertical.

The parallelogram, $ABCD$, is positioned differently. $A$ lies on the positive $y$-axis, $D$ is on the positive $x$-axis, and $B$ and $C$ lie in the first quadrant. Three of its vertices, $A$, $B$, and $D$ are located at $(0,30)$, $(k,50)$ and $(40,0)$, respectively. The area of $ABCD$ is $1340$ units$^2$. If $k > 0$, determine the coordinates of $B$ and $C$. 