Problem of the Week  
Problem D  
Find the Largest Area

Rectangle $ACEG$ has $B$ on $AC$ and $F$ on $EG$ such that $BF$ is parallel to $CE$. Also, $D$ is on $CE$ and $H$ is on $AG$ such that $HD$ is parallel to $AC$, and $BF$ intersects $HD$ at $J$. The area of rectangle $ABJH$ is $6$ cm$^2$ and the area of rectangle $JDEF$ is $15$ cm$^2$.

If the dimensions of rectangles $ABJH$ and $JDEF$, in centimetres, are integers, then determine the largest possible area of rectangle $ACEG$. Note that the diagram is just an illustration and is not intended to be to scale.