**Problem of the Week**

**Problem D and Solution**

**Shady Square**

**Problem**

Rectangle $STUV$ has square $PQRS$ removed, leaving an area of 92 m$^2$. Side $PT$ is 4 m in length and side $RV$ is 8 m in length. What is the area of rectangle $STUV$?

**Solution**

Let $x$ represent the side length of square $PQRS$. In the diagram, extend $RQ$ to intersect $TU$ at $W$. This creates rectangle $PTWQ$ and rectangle $RWUV$. Then $UV = PT + SP = (4 + x)$ m and $TW = RS = x$ m.

\[
\text{Area } PTWQ + \text{Area } RWUV = \text{Remaining Area} \\
PT \times TW + RV \times UV = 92 \\
4x + 8(4 + x) = 92 \\
4x + 32 + 8x = 92 \\
12x + 32 = 92 \\
12x = 60 \\
x = 5 \text{ m}
\]

Since $x = 5$ m, $SV = 8 + x = 13$ m and $UV = 4 + x = 9$ m.

Therefore, the original area of rectangle $STUV$ is $SV \times UV = 13 \times 9 = 117$ m$^2$. 

![Diagram of the problem and solution](https://example.com/diagram.png)