Problem of the Week

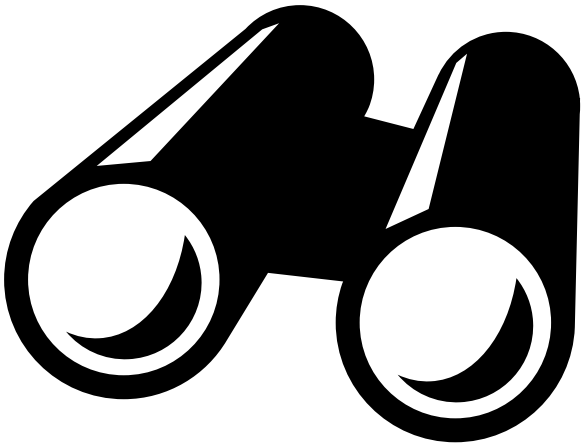
Problem E

Looking for Possibilities

Determine all possible ordered pairs of positive integers (a, b) such that

$$\frac{1}{a} + \frac{2}{b} = \frac{8}{2a+b} \quad \text{and} \quad 1963 \leq 4a + 7b \leq 2016.$$

The notation $1963 \leq 4a + 7b \leq 2016$ means that for positive integers a and b, $4a + 7b \geq 1963$ and $4a + 7b \leq 2016$.



In the inequality the choice of 2016 is probably obvious but why 1963?

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