



Problem of the Week

Problem C

Efficient Tiling

Sophia has an unlimited supply of square tiles. Sophia has 1 cm by 1 cm tiles, 2 cm by 2 cm tiles, 3 cm by 3 cm tiles, and so on. Every tile has integer side lengths, in centimetres.

A rectangular bathroom floor with an 84 cm by 140 cm surface is to be completely covered by identical square tiles, none of which can be cut. Sophia knows that the floor can be completely covered with 11 760 tiles of size 1 cm by 1 cm, since $84 \times 140 = 11\,760 \text{ cm}^2$. However, Sophia wants to use the minimum number of identical sized tiles to complete the job.

Determine the minimum number of identical sized tiles required to completely cover the bathroom floor.

