



Problem of the Week

Problem E

Luminous Detail

A *pixel* is the smallest unit of a digital image.

The number of pixels/cm in each of the horizontal and vertical directions of a digital image affects the quality of the image. The more pixels/cm, the sharper the image will be.

A small monitor has dimensions 15 cm by 10 cm and has 80 pixels/cm in each dimension. The total number of pixels is $(15 \times 80) \times (10 \times 80) = 960\,000$.

The manufacturer wants to build a new monitor with 2 145 624 pixels. To accomplish this, both the length and width of the screen will be increased by $n\%$ and the number of pixels/cm in each dimension will be increased by $2n\%$.

Determine the dimensions of the new monitor and the new number of pixels/cm.

