



## Problem of the Week

### Problem E

#### The Power of Pixels

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 is.

A 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.

