

Problem 2

A *gry* is an old English measure for length, defined as $1/10$ of a line, where *line* is another old English measure for length, defined as $1/12$ inch. A common measure for length in the publishing business is a *point*, defined as $1/72$ inch. What is an area of 0.50 gry^2 in points squared (points^2)?

Solution

Multiply the given area by the appropriate conversion factors to get the desired units.

$$\begin{aligned} 0.50 \text{ gry}^2 &= 0.50 \text{ gry}^2 \times \left(\frac{1/10 \text{ line}}{1 \text{ gry}} \right)^2 \times \left(\frac{1/12 \text{ inch}}{1 \text{ line}} \right)^2 \times \left(\frac{1 \text{ point}}{1/72 \text{ inch}} \right)^2 \\ &= 0.50 \text{ gry}^2 \times \left(\frac{1 \text{ line}}{10 \text{ gry}} \right)^2 \times \left(\frac{1 \cancel{\text{inch}}}{12 \cancel{\text{lines}}} \right)^2 \times \left(\frac{72 \text{ points}}{1 \cancel{\text{inch}}} \right)^2 \\ &= 0.50 \times \frac{72^2}{10^2 \times 12^2} \text{ points}^2 \\ &= 0.18 \text{ points}^2 \end{aligned}$$