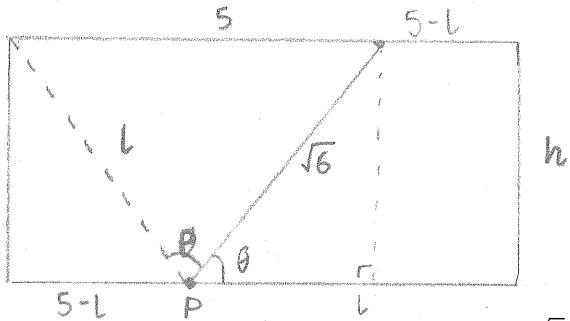
Vladimir Ufimtsev. Problem H-4.

Assume that the height of the rectangle is h. Note that the 'fold-line' will bisect the rectangle into 2 parts of equal area and shape as shown in the picture. Note that the bisecting 'fold-line' will intersect the bottom line of the rectangle at point P, splitting the line into parts of length l and $5 - l$.



Knowing that the 'fold-line' has length $\sqrt{6}$ we obtain the following equation:

$$h^2 + (2l - 5)^2 = 6$$

We also know that the line from P to the top left corner of the rectangle will be of length l, giving us:

$$h^2 + (5 - l)^2 = l^2$$

Or:

$$h^2 = 10l - 25$$

Substituting this result for h^2 into the first equation and solving yields $l = 3$. Substituting $l = 3$ into the first equation allows us to find the height of the rectangle: $h = \sqrt{5}$.