$$= a + \sqrt{2\,a \times a}$$

making $\sqrt{2\,a \times a} = y$ by the 3rd formula, then

$$x = a + y \qquad \text{G. S.}$$

PROBLEM XXIV.

To construct a rectangle $x\,y$, having given the perimeter $b = 2\,x + 2\,y$, and the surface $S = x\,y$.

Let $a =$ the side of an equivalent square, then

$$\text{the base } x = \frac{b}{4} + \sqrt{\frac{b^2}{16} - a^2} \qquad \text{N. S.}$$

$$\text{making } \frac{b^2}{16} - a^2 = z^2 \text{ by the 5th formula, then}$$

$$x = \frac{b}{4} + \sqrt{z^2} = \frac{b}{4} + z \quad \text{G. S.}$$

It is evident that the height $y = \dfrac{b - 2\,x}{2}$

PROBLEM XXV.

To construct a rectangle, having given the surface $S = x\,y$, and the difference of the adjacent sides $x - y = d$.

Let $a =$ the side of an equivalent square; then

$$\text{the base } x = \frac{d}{2} + \sqrt{a^2 + \frac{d^2}{4}} \qquad \text{N. S.}$$

$$= \frac{d}{2} + \sqrt{z^2} \qquad \text{(See Problem XXIV.)}$$

$$= \frac{d}{2} + z \qquad \text{G. S.}$$

$$\text{the height } y = -\frac{d}{2} + \sqrt{a^2 + \frac{d^2}{4}}$$

PROBLEM XXVI.

To construct a parallelogram, having given the adjacent sides a, b, and the difference d of the two diagonals.

Let the greater diagonal $= x$

$$x = \frac{d}{2} + \sqrt{a^2 + b^2 - \frac{d^2}{4}} \quad \text{N. S.}$$

$$= \frac{d}{2} + \sqrt{y^2 - \frac{d^2}{4}} \qquad \text{(by formula 4)}$$

$$= \frac{d}{2} + z \ \text{(by formula 5)} \quad \text{G. S.}$$