PROBLEM XXVII.

To determine a Right-Angled Triangle, having given the hypotenuse a, and the sum of the two sides $b + c$.

$$b = \frac{b+c}{2} \pm \sqrt{\frac{a^2}{2} - \frac{(b+c)^2}{4}}$$

PROBLEM XXVIII.

To determine a Right-Angled Triangle, having given the base b, and the sum of the hypotenuse, and the other side $a + c$.

$$\text{side } c = \frac{(a+c)^2 - b^2}{2\,(a+c)}$$

PROBLEM XXIX.

To determine a Right-Angled Triangle, having given the base b, and the difference d between the hypotenuse a and the other side c; so that $a - c = d$.

$$c = \frac{b^2 - d^2}{2\,d} \qquad \text{N. S.}$$

$$\text{make } b^2 - d^2 = y^2 \qquad \text{(by formula 5),}$$

$$\text{then } c = \frac{y^2}{2\,d} = \frac{y \times y}{2\,d} \qquad \text{G. S.}$$

$$\text{and then } a = d + c.$$

PROBLEM XXX.

To determine a Right-Angled Triangle, having given the hypotenuse a, and the difference d between the two other sides b and c; so that $b - c = d$.

$$c = -\frac{d}{2} + \tfrac{1}{2}\sqrt{2\,a^2 - d^2} \qquad \text{N. S.}$$

$$\text{make } \tfrac{1}{2}\sqrt{2\,a^2 - d^2} = x \qquad \text{(by formula 5),}$$

$$\text{then } c = x - \frac{d}{2} \qquad \text{G. S.}$$

$$\text{and then } b = c + d$$

PROBLEM XXXI.

To determine a triangle, having given the base b, the perpendicular h to the base from vertical angle, and the difference d between the two other sides a and c; so that $a - c = d$.