PROBLEM XVI.

To construct a rectangle $c\,x$ on a given base c, equivalent to a given square a^2.

Altitude $x = \frac{a^2}{c}$ N. S.

$= \frac{a \times a}{c}$ G. S.

PROBLEM XVII.

To construct a trapezoid $\frac{p\,(m+n)}{2}$ equivalent to a given square a^2, having given the two bases, m and n.

Altitude $p = \frac{a^2}{\frac{1}{2}(m+n)}$ N. S.

$= \frac{a^2}{y}$ (See Problem IX.)

$= \frac{a \times a}{y}$ G. S.

PROBLEM XVIII.

To construct a trapezoid $\frac{p\,(m+n)}{2}$ equivalent to a given square a^2, having given one of the bases m, and the altitude p.

the other base $n = \frac{a^2 - \frac{1}{2}\,p\,m}{\frac{1}{2}\,p}$ N. S.

make $\frac{1}{2}\,p\,m = y^2$ by Problem VIII., then

$n = \frac{a^2 - y^2}{\frac{1}{2}p}$

make $a^2 - y^2 = z^2$ by the 5th formula, then

$n = \frac{z^2}{\frac{1}{2}p} = \frac{z \times z}{\frac{1}{2}p}$ G. S.

PROBLEM XIX.

To construct a regular polygon $\frac{b\,c\,r}{2}$, equivalent to a given square a^2, having given the side c, and the number of sides b.

Apothem $r = \frac{2\,a^2}{b\,c}$ N. S.