

### 3.15 Tangential Quadrilateral

Sides of a quadrilateral:  $a, b, c, d$

Diagonals:  $d_1, d_2$

Angle between the diagonals:  $\varphi$

Radius of inscribed circle:  $r$

Perimeter:  $L$

Semiperimeter:  $p$

Area:  $S$

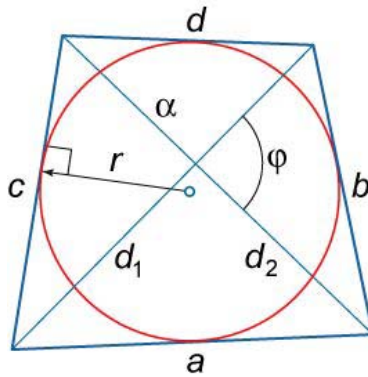


Figure 26.

**242.**  $a + c = b + d$

**243.**  $L = a + b + c + d = 2(a + c) = 2(b + d)$

**244.** 
$$r = \frac{\sqrt{d_1^2 d_2^2 - (a - b)^2 (a + b - p)^2}}{2p},$$

where  $p = \frac{L}{2}$ .

**245.**  $S = pr = \frac{1}{2} d_1 d_2 \sin \varphi$