Proposition 10, p. 209

$$\frac{1}{F} \propto \frac{(QT)^2 (CP)^2}{QR}$$

$$= \frac{(QT)^2 (CP)^2}{PV}$$

$$= \frac{(QV)^2 (PF)^2}{PV}$$

$$= \frac{VG\,(CD)^2\,(PF)^2}{(PC)^2}$$

$$= \frac{2\,(CD)^2 (PF)^2 \cancel{PC}}{(PC)^{\cancel{3}}}$$

$$= \frac{2\,(BC)^2 (CA)^2}{PC}$$

or simply

$F \propto PC$

By I.6 Corollary 1 p.182

Trivial

Similar triangles

$$\frac{QV}{QT} = \frac{PC}{PF} \quad \text{or} \quad QT \cdot PC = QV \cdot PF$$

From Conics – Apollonius I.21

$$\frac{PV\,VG}{(QV)^2} = \frac{(PC)^2}{(CD)^2} \quad \text{or} \quad \frac{(QV)^2}{PV} = VG\frac{(CD)^2}{(PC)^2}$$

$VG = 2PC$ evanescently

Lemma 12 $CD \cdot PF = BC \cdot CA$

because BC and CA are given