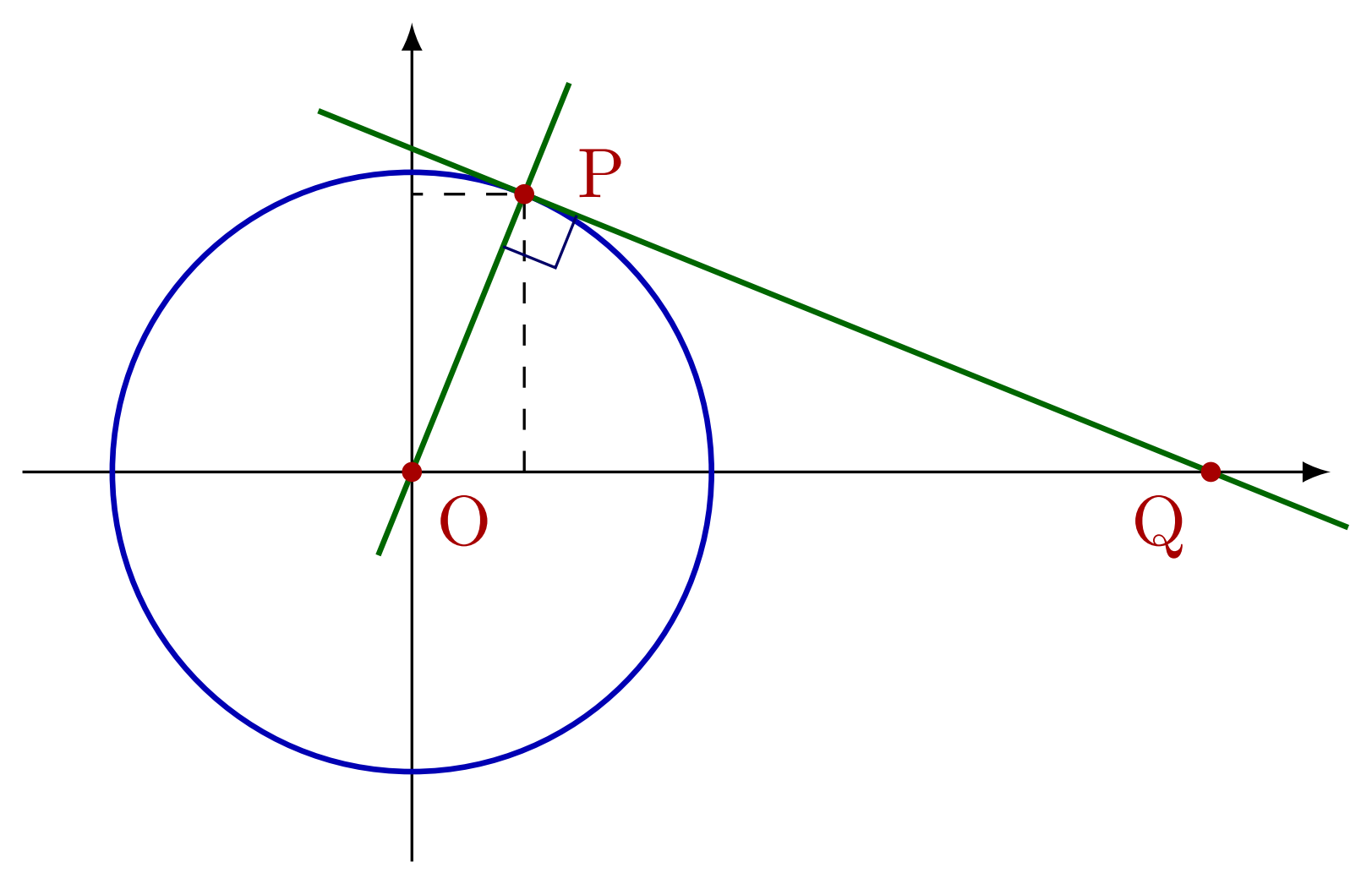
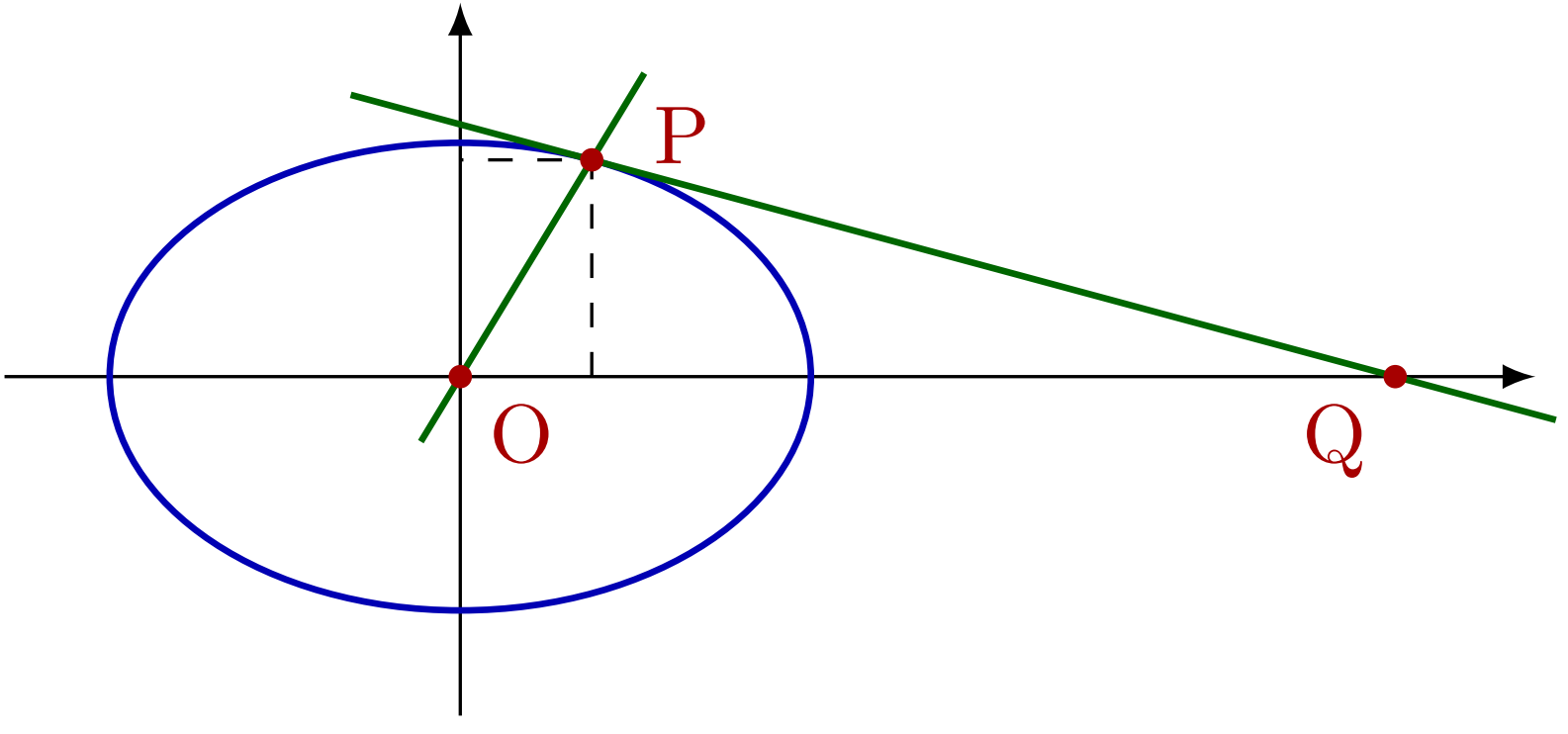

P
O
Q


P
O
Q

Circle with radius r:

$$|\mathrm{OQ}| =: q$$

$$|\mathrm{PQ}| = \sqrt{q^2 - r^2}$$

$$\sin\alpha = \frac{r}{q}$$

$$\mathrm{P} = \left(\frac{r^2}{q}, r\sqrt{1 - \frac{r^2}{q^2}}\right)$$

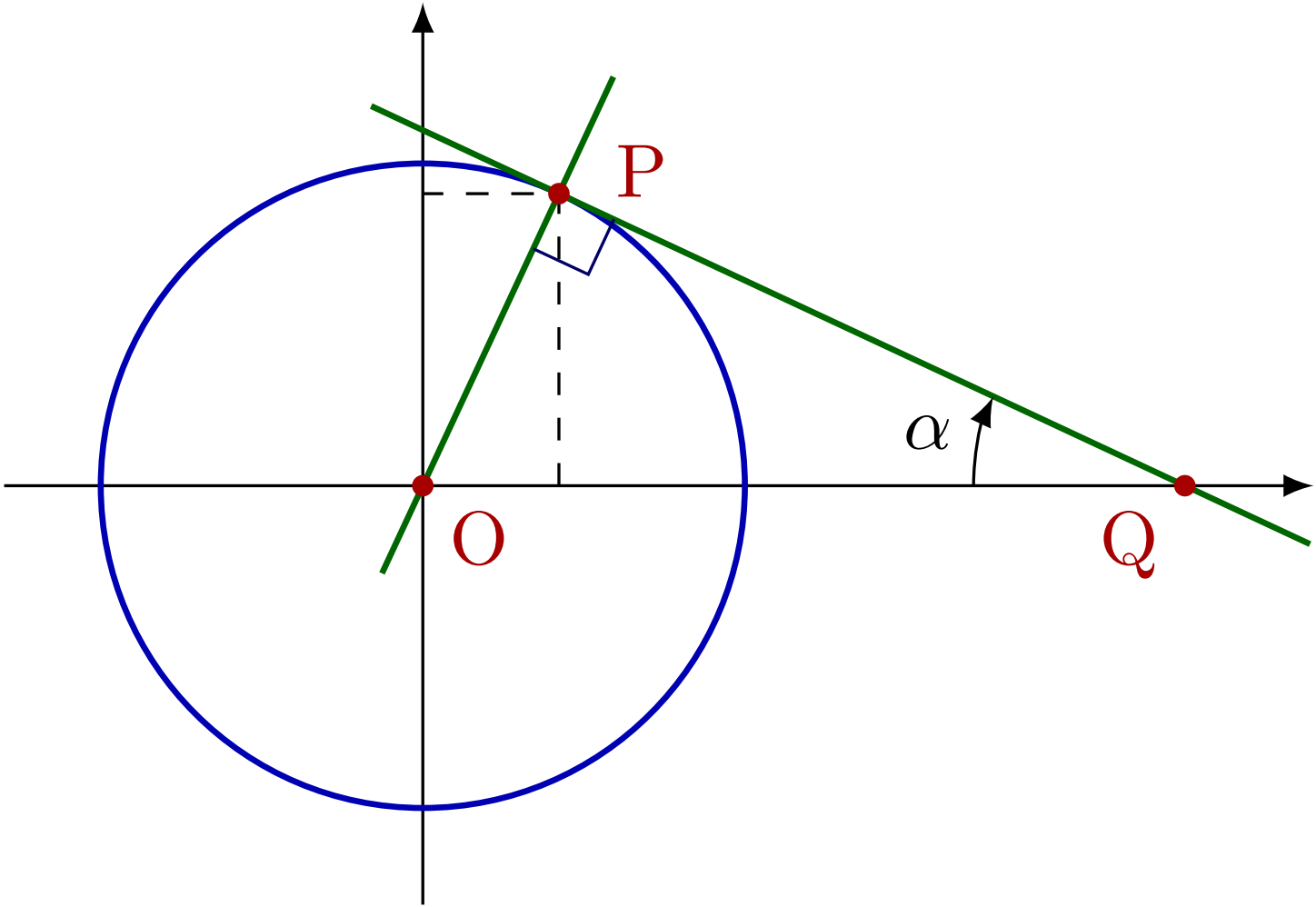
Ellipse with horizontal radius a and vertical radius b:

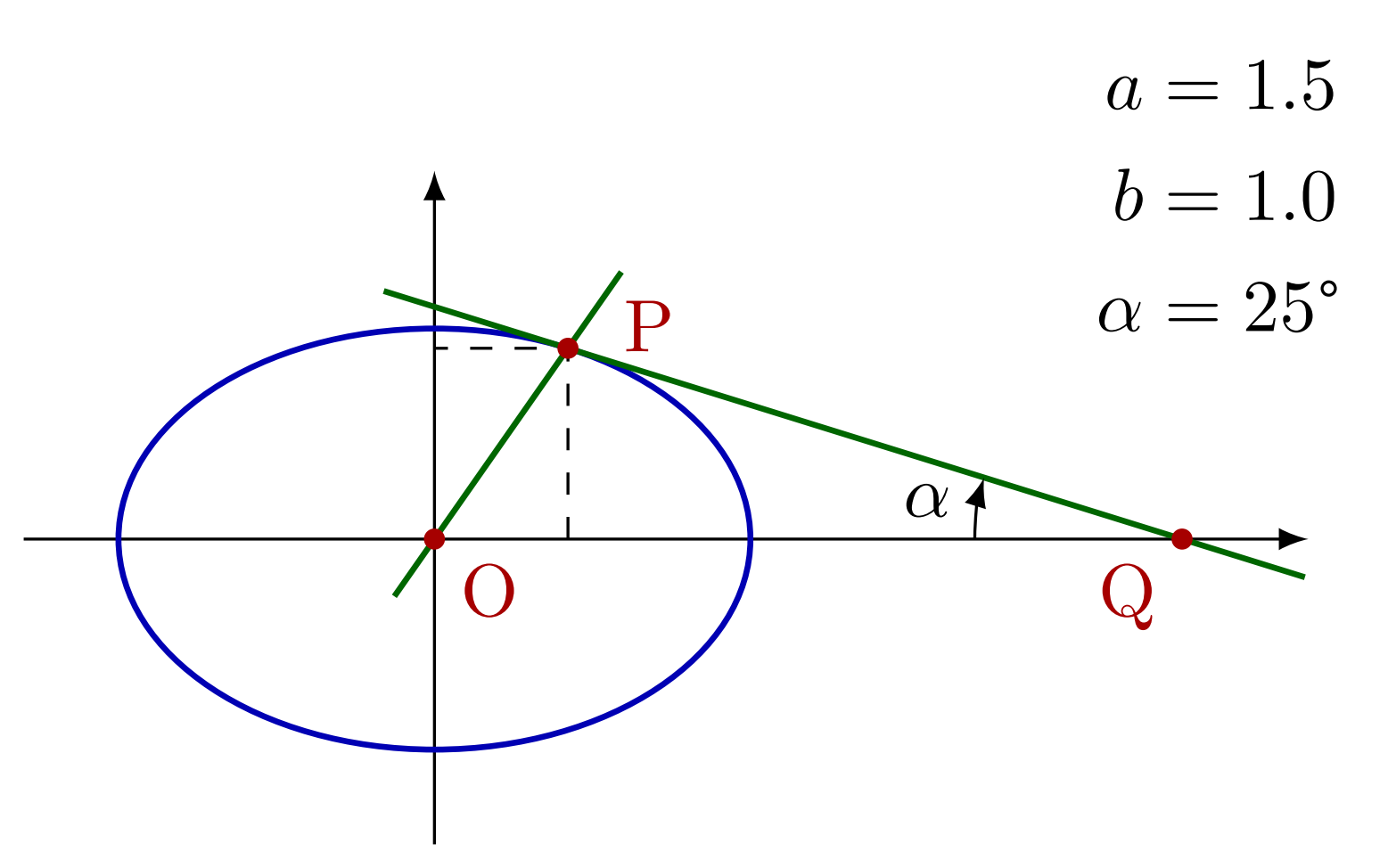
$$|\mathrm{OQ}| =: q$$

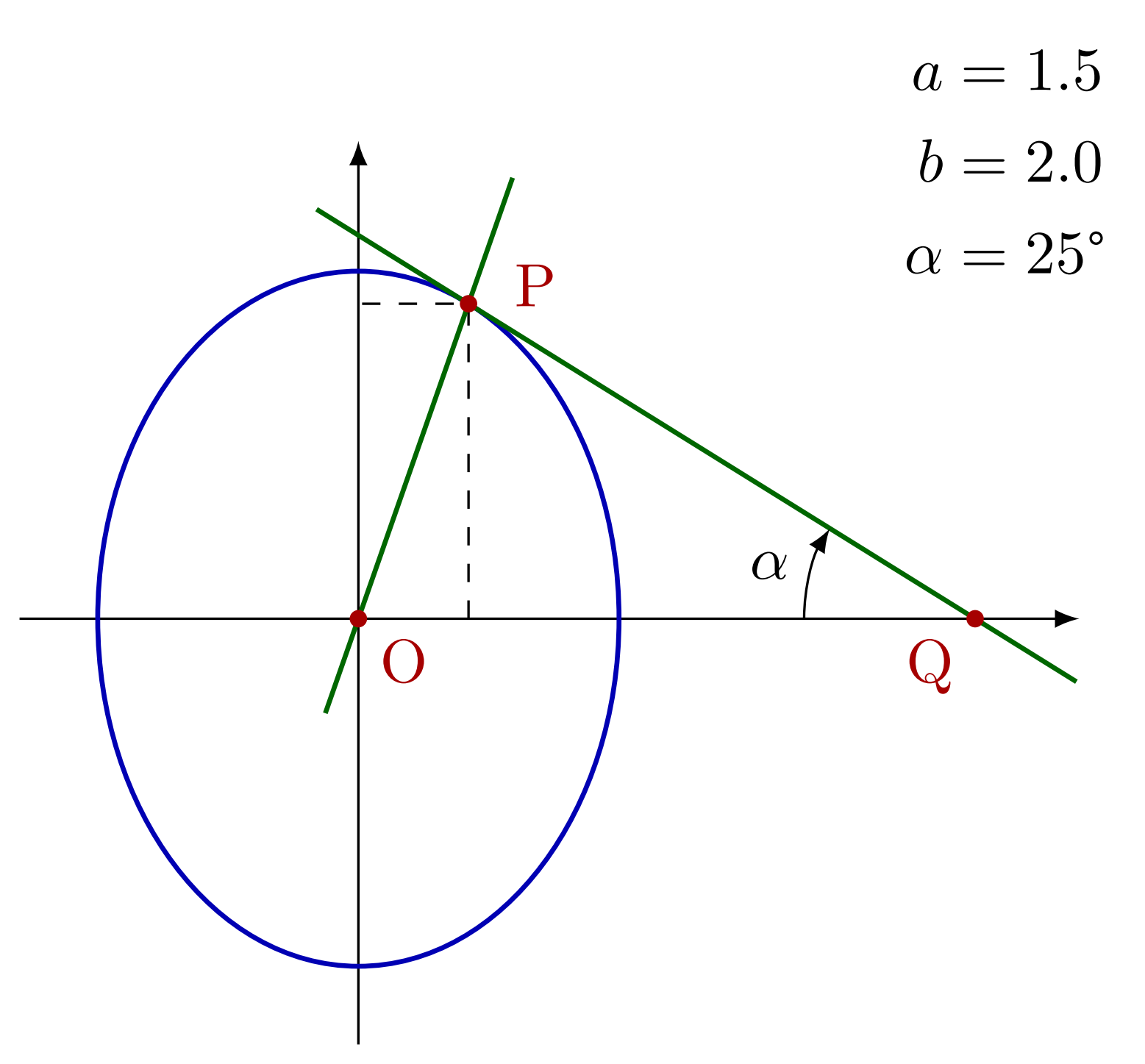
$$|\mathrm{PQ}| = \sqrt{(q^2 + b^2 - a^2)\left(1 - \frac{a^2}{q^2}\right)}$$

$$\sin\alpha = \frac{a}{q}$$

$$\mathrm{P} = \left(\frac{a^2}{q}, b\sqrt{1 - \frac{a^2}{q^2}}\right)$$


P
O
Q
α


$a = 1.5$
$b = 1.0$
$\alpha = 25°$
P
O
Q
α

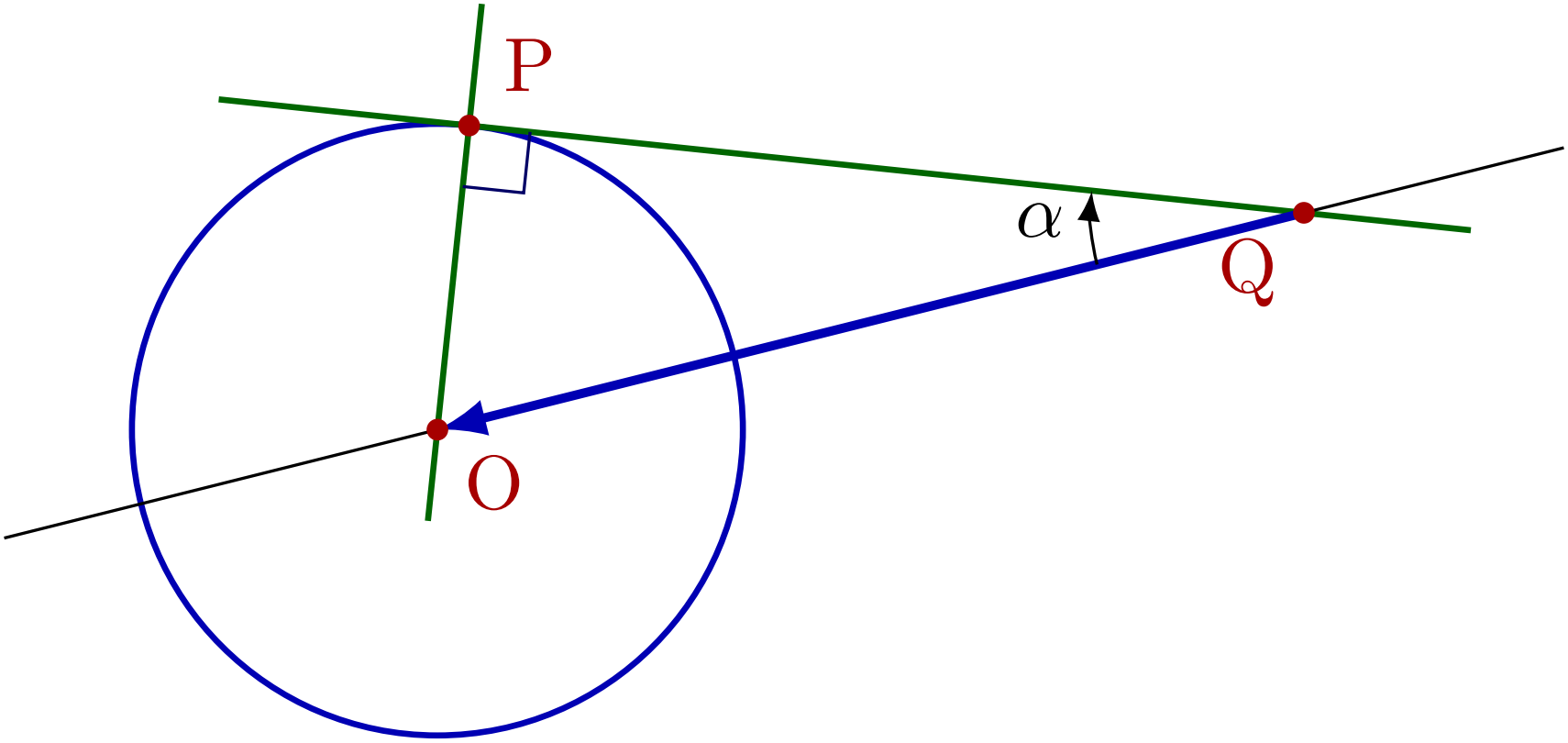

$a = 1.5$
$b = 2.0$
$\alpha = 25°$
P
O
Q
α

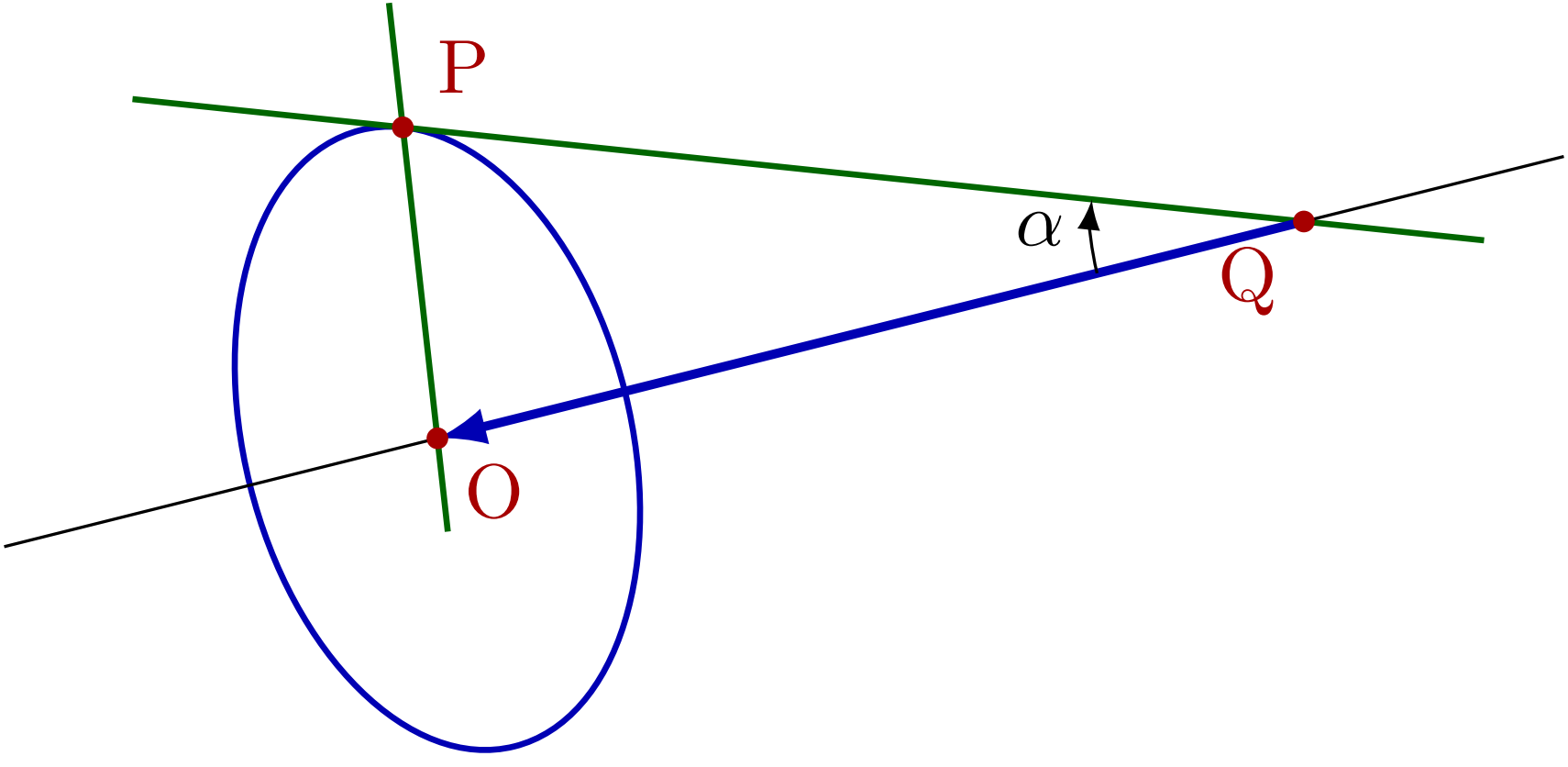
Circle with radius r:

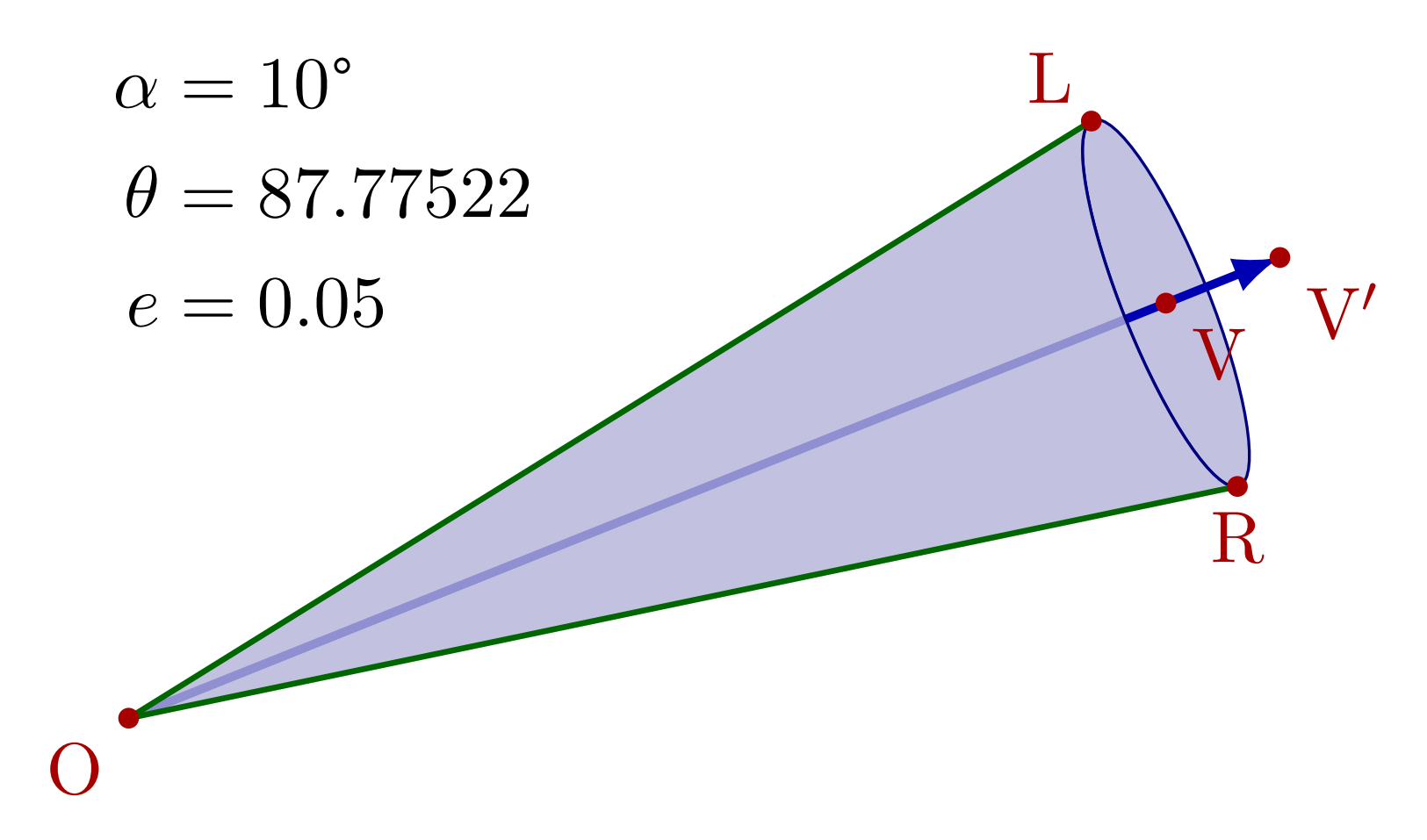
$$|\mathrm{OQ}| = \frac{r}{\sin\alpha}$$
$$|\mathrm{PQ}| = r|\cot\alpha|$$
$$\mathrm{P} = (r; 90-\alpha) = (r\sin\alpha, r\cos\alpha)$$

Ellipse with horizontal radius a and vertical radius b:

$$|\mathrm{OQ}| = \frac{a}{\sin\alpha}$$
$$|\mathrm{PQ}| = \sqrt{\frac{a^2}{\sin^2\alpha} + b^2 - a^2}|\cos\alpha|$$
$$\mathrm{P} = (a\sin\alpha, b\cos\alpha)$$


P
α
Q
O

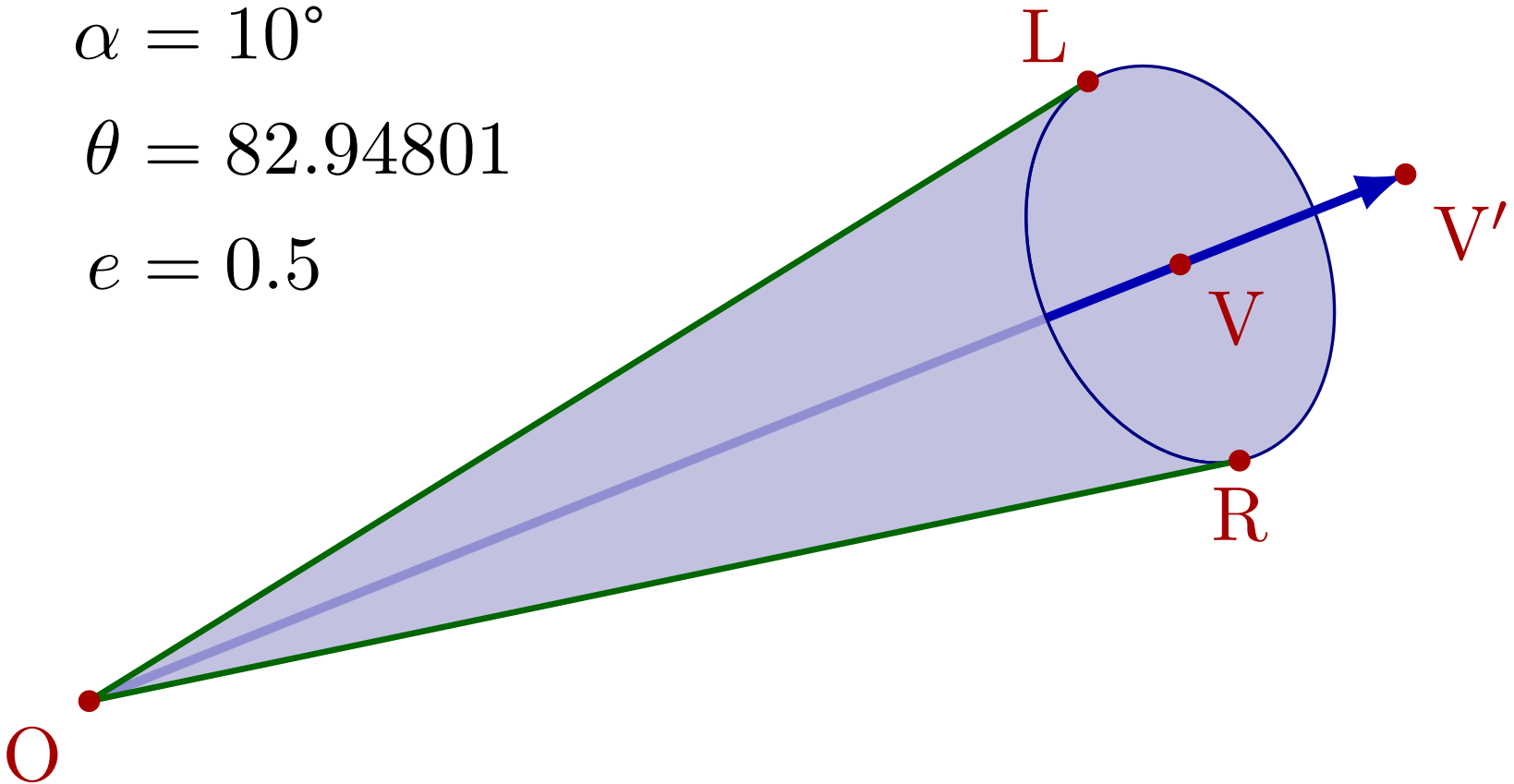

P
α
Q
O

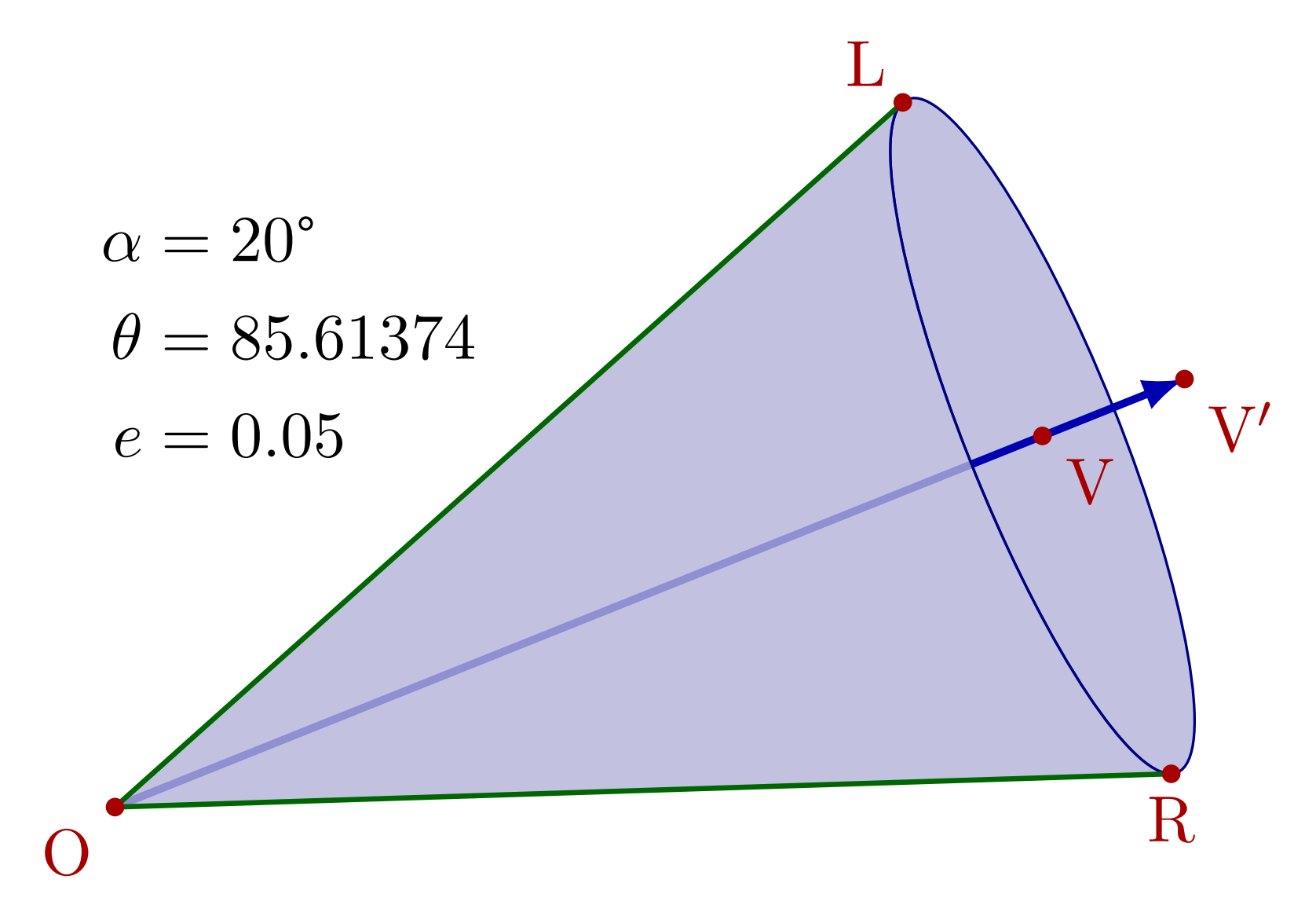

$\alpha = 10^\circ$
$\theta = 87.77522$
$e = 0.05$
L
V′
V
R
O

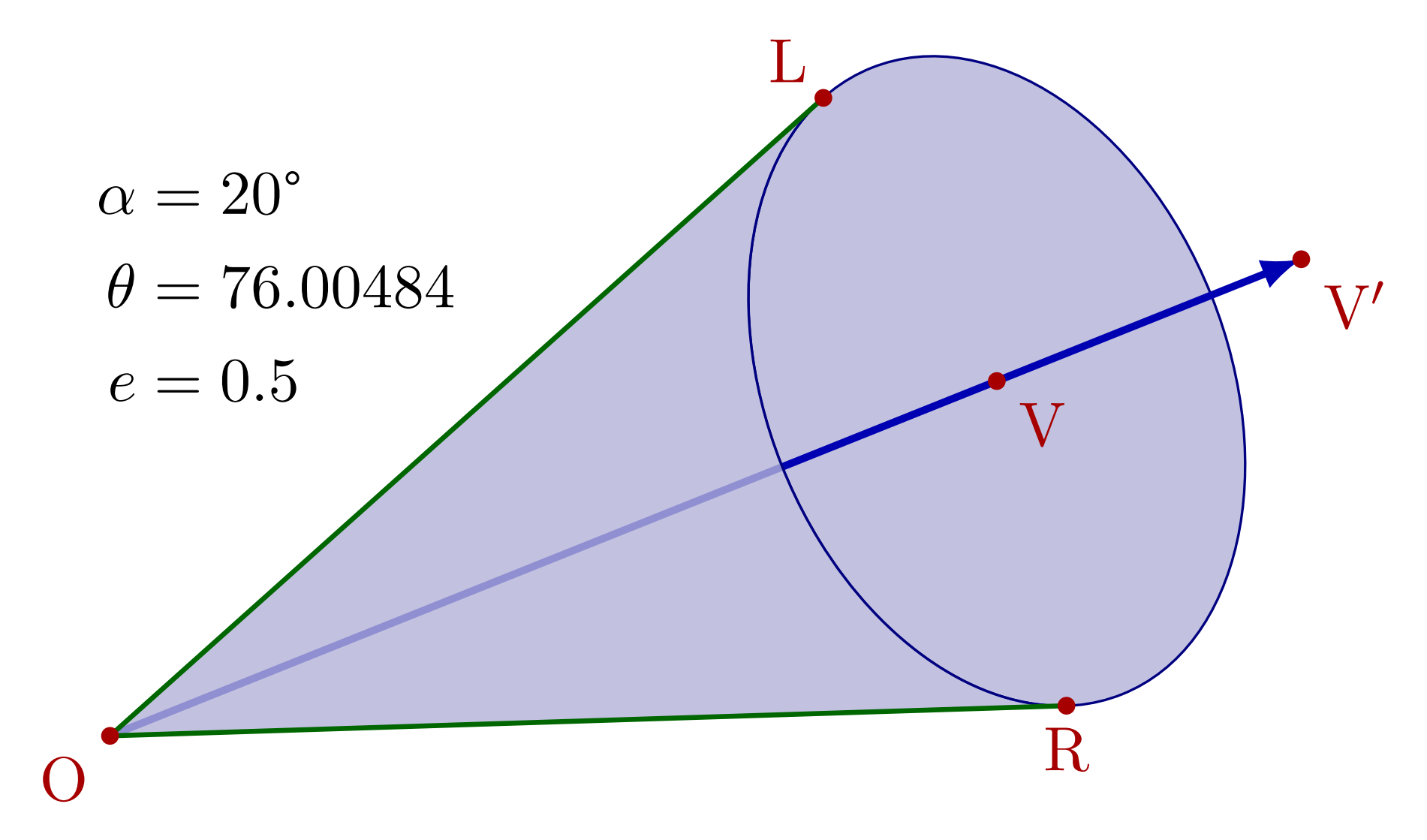
$\alpha = 10^\circ$

$\theta = 82.94801$

$e = 0.5$




$\alpha = 20°$
$\theta = 85.61374$
$e = 0.05$
L
V′
V
R
O


$\alpha = 20°$
$\theta = 76.00484$
$e = 0.5$
L
V′
V
R
O