

$$\frac{100+2q}{q} = \frac{50+q}{2}$$

$$2(100+2q) = q(50+q)$$

$$200+4q = 50q+q^2$$

~~-200~~ ~~-4q~~     ~~-200~~ ~~-4q~~

$$0 = q^2 + 46q - 200$$

$$a=1, b=46, c=-200$$

$$q = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{46 \pm \sqrt{(46)^2 - 4(1)(-200)}}{2(1)}$$

$$= \frac{46 \pm \sqrt{2916}}{2}$$

$$= \frac{46 \pm 54}{2}$$

$$= 4 \text{ and } -50$$

↙  
Answer

~~Eq. point (50, 50)~~

Eq. point (4, 27)

~~Eq. point (50, 40)~~