

$$\sqrt{(x-p)^2 + (y-q)^2} = |y-d|$$

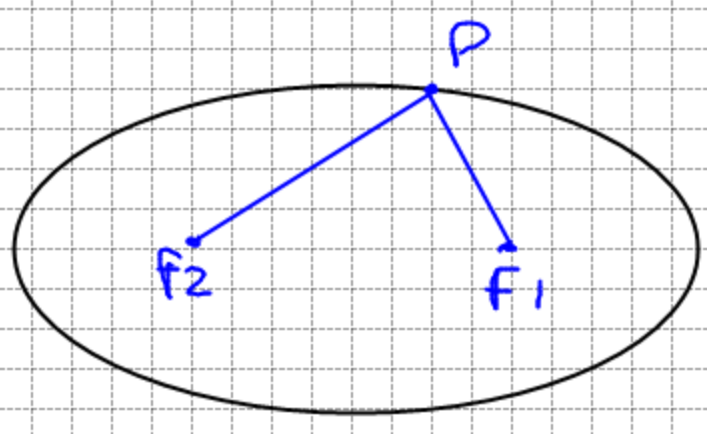
$$\sqrt{x^2 + p^2 - 2px + y^2 + q^2 - 2qy} = |y-d|$$

$$x^2 + p^2 - 2px + y^2 + q^2 - 2qy = y^2 + d^2 - 2dy$$

$$2dy = -x^2 - p^2 + 2px - q^2 + 2qy + d^2$$

$$(2d - 2q)y = -x^2 - p^2 + 2px - q^2 + d^2$$

$$y = -\frac{1}{2d-2q}x^2 + \frac{px}{d-q} + \frac{d^2 - p^2 - q^2}{2d-2q}$$



$P(x, y)$ $F_1(0, -c)$ $F_2(0, c)$

$$PF_1 + PF_2 = 2b \rightarrow \sqrt{x^2 + (y+c)^2} + \sqrt{x^2 + (y-c)^2} = 2b$$

$$\sqrt{x^2 + (y+c)^2} = 2b - \sqrt{x^2 + (y-c)^2}$$

$$x^2 + (y+c)^2 = 4b^2 - 4b\sqrt{x^2 + (y-c)^2} + x^2 + (y-c)^2$$

$$4b\sqrt{x^2 + (y-c)^2} = 4b^2 + y^2 + c^2 - 2cy - y^2 - c^2 - 2cy$$

$$4b\sqrt{x^2 + (y-c)^2} = 4b^2 - 4cy$$

$$x^2 b^2 + y^2 b + c^2 b^2 - 2cb^2 y = b^4 + c^2 y^2 - 2b^2 cy$$