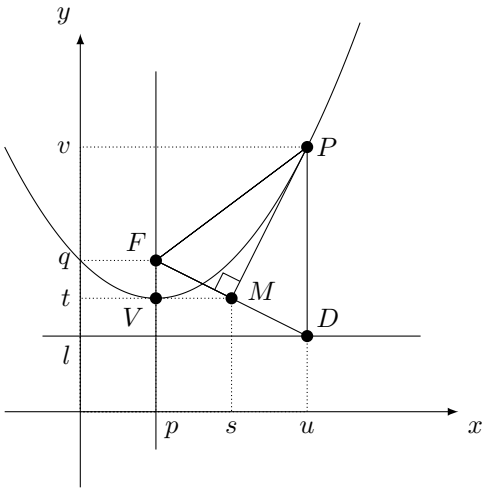

Focus: F
Directrix: $y = l$
Diamater: $x = u$
Axis: $x = p$
Vertex: V
Tangent: τ
Normal: ν

$$\Rightarrow M = (s,t) = \left(\frac{p+u}{2}, \frac{q+l}{2}\right)$$

$$\Rightarrow \text{slope}(FD) = \frac{\Delta y}{\Delta x} = \frac{l-q}{u-p}$$

$$\Rightarrow \text{slope}(MP) = \frac{-1}{\text{slope}(FD)} = \frac{p-u}{l-q}$$

$$\Rightarrow \text{line}(MP) = f(x) = mx + b \Rightarrow \frac{q+l}{2} = \frac{p-u}{l-q} \cdot \frac{p+u}{2} + b \Rightarrow b = \frac{l^2 - q^2 - p^2 + u^2}{2(l-q)}$$

$$\therefore f(u) = \frac{2up - u^2 + l^2 - q^2 - p^2}{2(l-q)}$$