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Dr. Mathematics

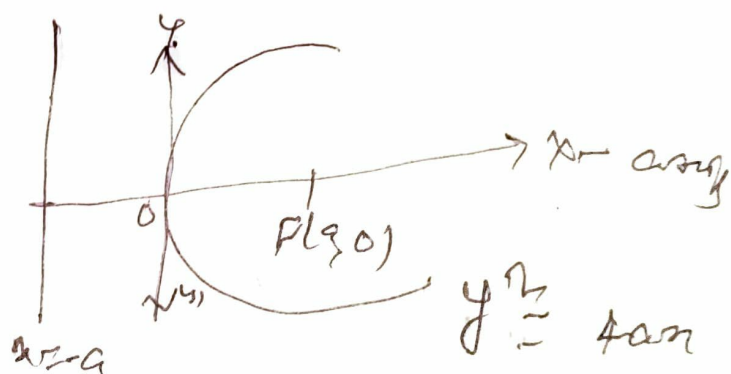
Topic - Parabola

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Equation of parabolas in different forms :-

We know that the equation of a parabola in the standard form is $y^2 = 4ax$ when the vertex is the origin and axis of the parabola is the x -axis.

In this case eqⁿ of directrix is $x = -a$.



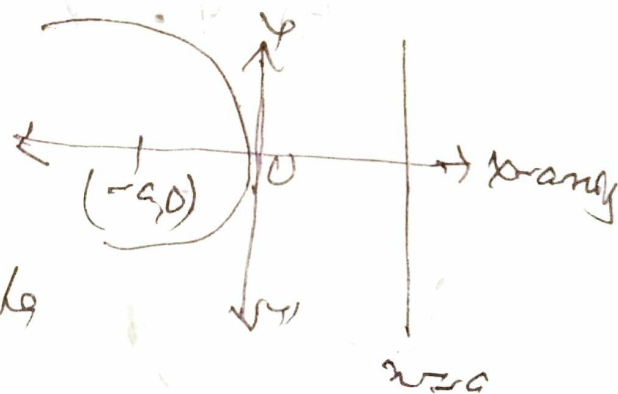
If $(-a,0)$ is

the focus of a parabola then equation of parabola

becomes $y^2 = -4ax$.

In this case equation of directrix is $x = 0$. Axis of parabola

be $x=a$.



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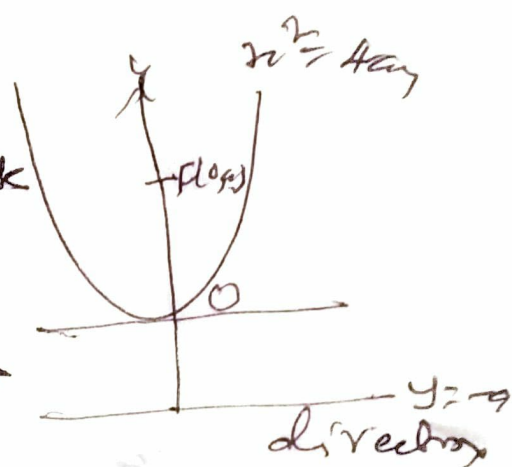
Case (ii) When axis of Parabola is y axis and Parabola is open upward the equation of parabola becomes

$$x^2 = 4ay$$

In this case co-ordinates of Focus is $(0, a)$.

equation of directrix

$$\text{is } y + a = 0$$



Replacing x by $-y$ &

y by x in the

results $y^2 = 4ax$

we get for

$$x^2 + 4ay = 0$$

$$\Rightarrow x^2 = -4ay$$

Vertex $(0,0)$

$$F = (0, -a)$$

eqⁿ of axis is $x = 0$

the eqⁿ of directrix is $ay = 0$.

$$\text{Latus Rectum} = 4a$$

