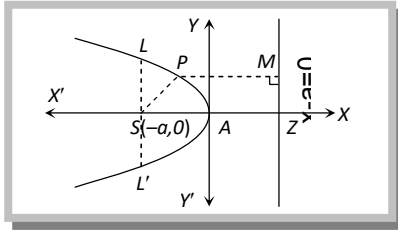


## Some other standard forms of Parabola.

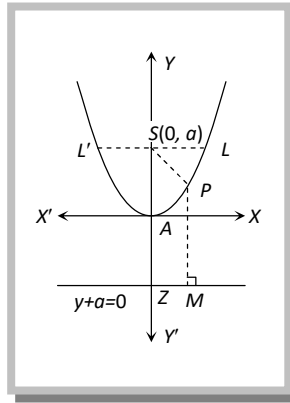
(1) Parabola opening to left  
opening down wards

(i.e.  $y^2 = -4ax$ ); ( $a > 0$ )



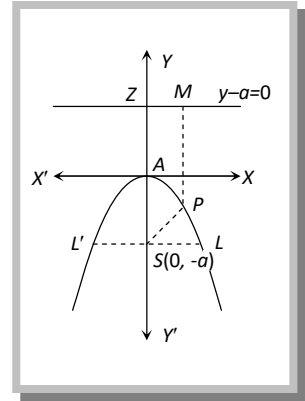
(2) Parabola opening upwards

(i.e.  $x^2 = 4ay$ ); ( $a > 0$ )



(3) Parabola

(i.e.  $x^2 = -4ay$ ); ( $a > 0$ )



| Important terms           | $y^2 = 4ax$ | $y^2 = -4ax$ | $x^2 = 4ay$ | $x^2 = -4ay$ |
|---------------------------|-------------|--------------|-------------|--------------|
| Coordinates of vertex     | (0, 0)      | (0, 0)       | (0, 0)      | (0, 0)       |
| Coordinates of focus      | (a, 0)      | (-a, 0)      | (0, a)      | (0, -a)      |
| Equation of the directrix | $x = -a$    | $x = a$      | $y = -a$    | $y = a$      |
| Equation of the axis      | $y = 0$     | $y = 0$      | $x = 0$     | $x = 0$      |
| Length of the latusrectum | $4a$        | $4a$         | $4a$        | $4a$         |

|                                    |         |         |         |         |
|------------------------------------|---------|---------|---------|---------|
| Focal distance of a point $P(x,y)$ | $x + a$ | $a - x$ | $y + a$ | $a - y$ |
|------------------------------------|---------|---------|---------|---------|