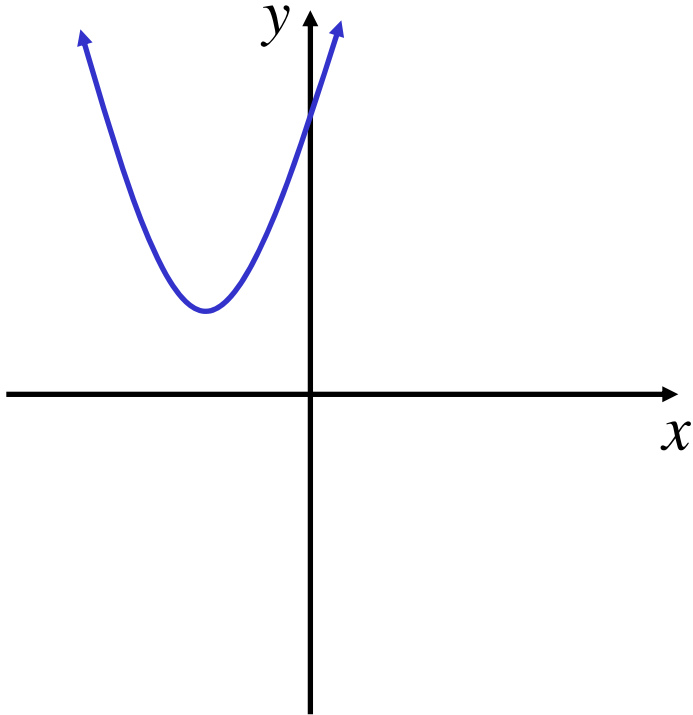


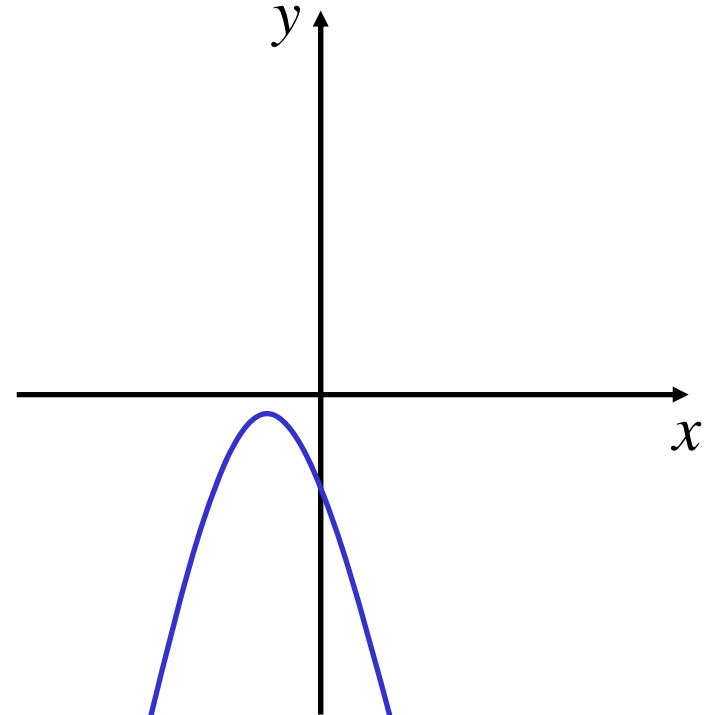
# *The Sign Of A Quadratic*

**Positive Definite**



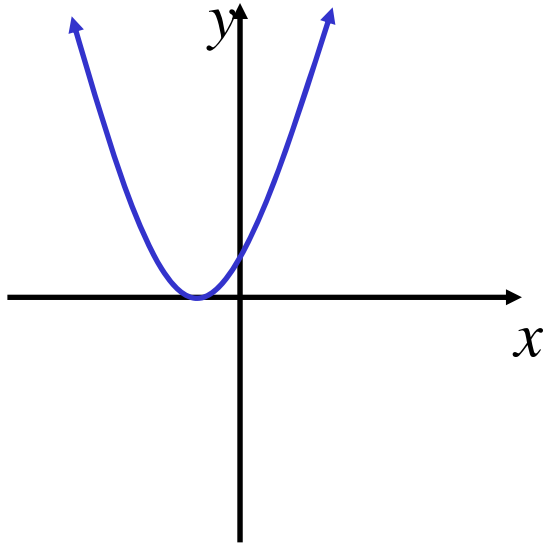
$$a > 0, \Delta < 0$$

**Negative Definite**

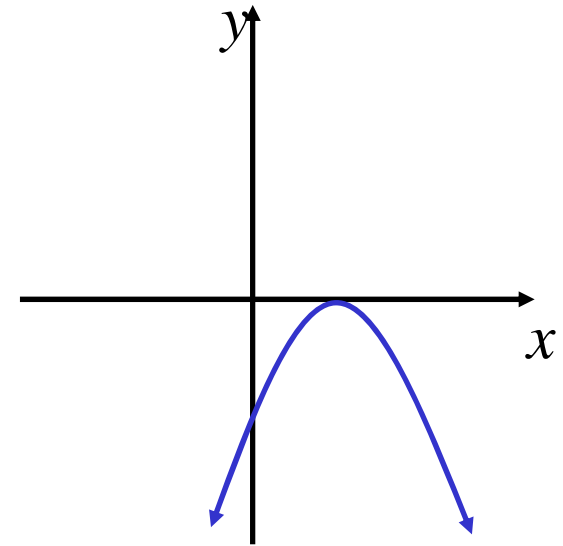


$$a < 0, \Delta < 0$$

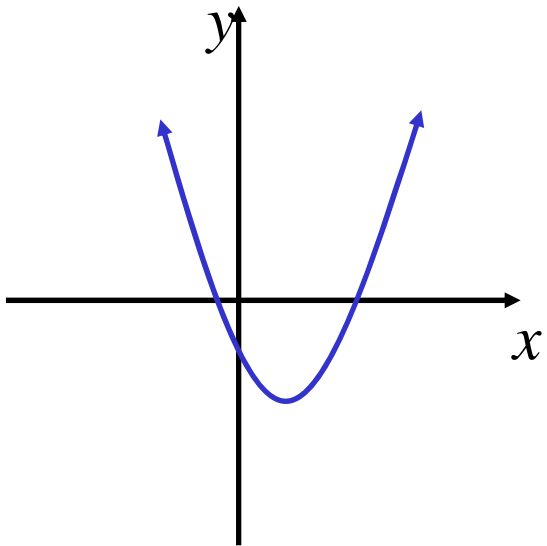
# Indefinite



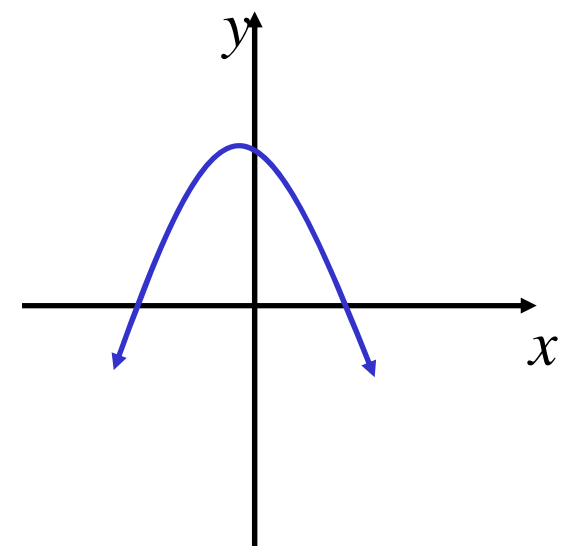
$$a > 0, \Delta = 0$$



$$a < 0, \Delta = 0$$



$$a > 0, \Delta > 0$$



$$a < 0, \Delta > 0$$

e.g. Find the values of  $k$  which makes  $kx^2 - 6x + k = 0$  positive definite

$$a > 0$$

$$\Delta < 0$$

$$k > 0$$

$$36 - 4k^2 < 0$$

$$k^2 > 9$$

$$k < -3 \text{ or } k > 3$$

$$\underline{\therefore k > 3}$$

**Exercise 8G; 2ace, 3bd, 4bd, 5bd, 6, 12, 15, 17\***