

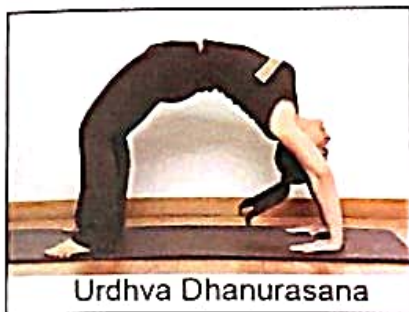
$$k(x^2 - (\text{sum of zeros})x + \text{product of zeros})$$

$$\Rightarrow k\left(x^2 - (-p)x + \left(\frac{-1}{p}\right)\right) \Rightarrow k\left(x^2 + px - \frac{1}{p}\right)$$

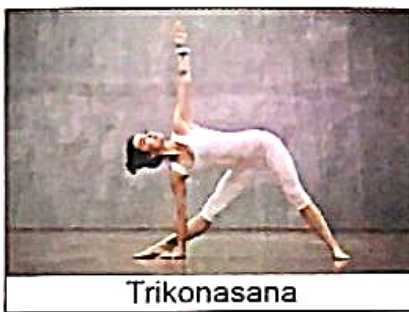
Hence option (c) is correct.

2. Read the following and answer any four questions from (i) to (v).

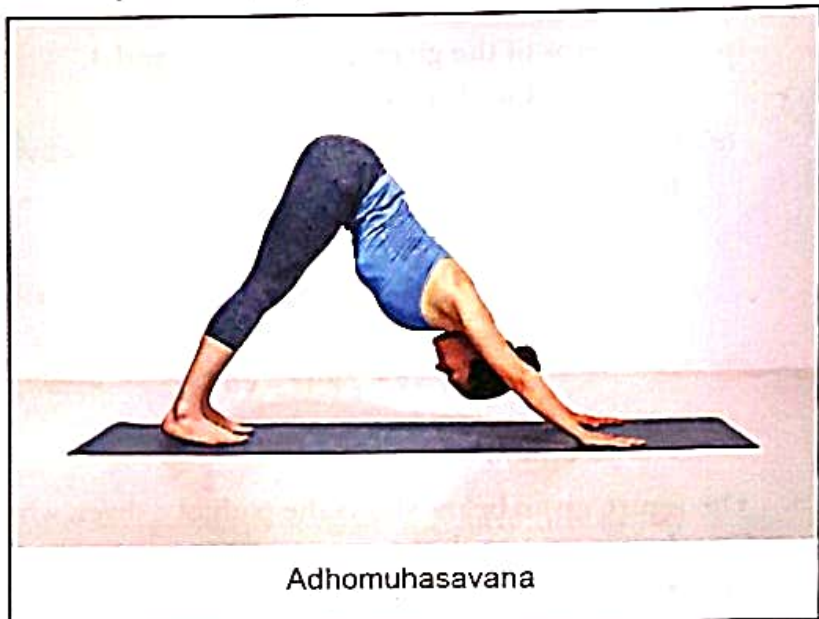
An *asana* is a body posture, originally and still a general term for a sitting meditation pose, and later extended in hatha yoga and modern yoga as exercise, to any type of pose or position, adding reclining, standing, inverted, twisting, and balancing poses. In the figure, one can observe that poses can be related to representation of quadratic polynomial. [CBSE Question Bank]



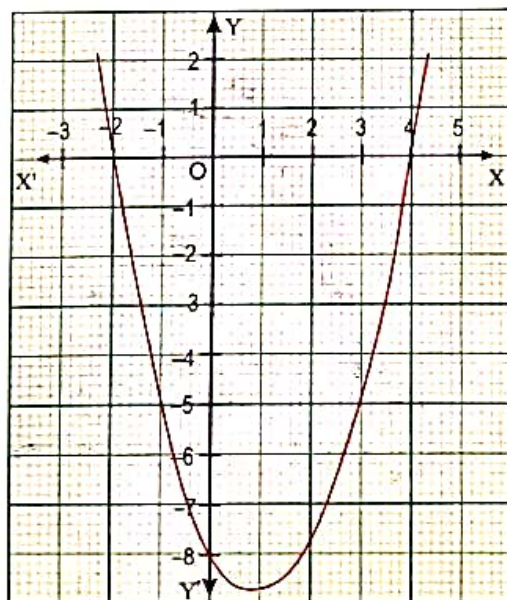
Urdhva Dhanurasana



Trikonasana



Adhomuhasavana



- (i) The shapes of the poses shown are
 (a) Spiral (b) Ellipse (c) Linear (d) Parabola
- (ii) The graph of parabola opens downward, if
 (a) $a \geq 0$ (b) $a = 0$ (c) $a < 0$ (d) $a > 0$
- (iii) In the graph, how many zeroes are there for the polynomial?
 (a) 0 (b) 1 (c) 2 (d) 3
- (iv) The two zeroes in the above shown graph are
 (a) 2, 4 (b) -2, 4 (c) -8, 4 (d) 2, -8

3. The figure given below shows the path of a diver, when she takes a jump from the diving board. Clearly it is a parabola.

Annie was standing on a diving board, 48 feet above the water level. She took a dive into the pool. Her height (in feet) above the water level at any time ' t ' in seconds is given by the polynomial $h(t)$ such that $h(t) = -16t^2 + 8t + k$.



Based on above information answer the following questions.

- (i) (a) What is the value of k ?
(b) At what time will she touch the water in the pool?
- (ii) (a) Rita's height (in feet) above the water level is given by another polynomial $p(t)$ with zeroes -1 and 2 , then find $p(t)$.
(b) A polynomial $q(t)$ with sum of zeroes as 1 and the product as -6 is modelling Anu's height in feet above the water at any time t (in seconds). Then find $q(t)$.