

## Comprehensive Test Series-1

### Quadratic Equations

TIME: 1.5hr

MM: 30

#### General Instructions:

- All Questions are compulsory.
  - Marks are given alongwith the questions individually.
  - Use of calculator is not permitted.
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**Q. 1.** Represent the following situation mathematically:

John and Jivanti together have 45 marbles. Both of them lost 5 marbles each and the product of the number of marbles they now have is 124. We would like to find out how many marbles they had to start with.

**Q. 2** A cottage industry produces certain number of toys in a day. The cost of production of each toy (in rupees) was found to be 55 minus the number of the toys produced in a day. On a particular day, the total cost of production was Rs. 750. We would like to find out the number of toys produced on that day.

**Q.3** Represent the following situations in the form of quadratic equations:

Rohan's mother is 26 years older than him. The product of their ages (in years) 3 years from now will be 360. We would like to find Rohan's present age.

**Q.4** A train travels a distance of 480 km at a uniform speed. If the speed had been 8 km/h less, then it would have taken 3 hours more to cover the same distance. We need to find the speed of the train.

**Q.5** Find two consecutive positive integers, sum of whose squares is 365.

**Q.6** Find the root of the equation;  $x - \frac{1}{x} = 3, x \neq 0$

**Q.7** Two water taps together can fill a tank in  $9\frac{3}{8}$  hours. The tap of larger diameter takes 10 hours less than the smaller one to fill the tank separately. Find the time in which each tap can separately fill the tank.

**Q.8** An express train takes 1 hour less than a passenger train to travel 132 km between Mysore and Bangalore (without taking into consideration the time they stop at intermediate stations). If the average speed of the express train is 11 km/h more than that of the passenger train, find the average speed of the two trains.

**Q.9** Find the value of k of the following quadratic equations, so that they have two equal roots.

$$kx(x - 2) + 6 = 0.$$

**Q.10** A motor boat whose speed is 18 km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.