

**AKSHAYA EDUCATIONAL FOUNDATION**  
**QUADRATIC EQUATIONS**

1. A fast train takes one hour less than a slow train for a journey of  $200\text{km}$ . If the speed of the slow train is  $10\text{km/hr}$  less than that of the fast train, find the speed of the two trains.

Ans.  $50\text{ km/hr}, 40\text{ km/hr}$

2. A plane left 40 minutes late due to bad weather and in order to reach its destination,  $1600\text{km}$  away in time, it had to increase its speed by  $400\text{km/hr}$  from its usual speed. Find the usual speed of the plane.

Ans.  $800\text{ km/hr}$

3. A train travels at a certain average speed for a distance  $63\text{km}$  and then travels a distance of  $72\text{km}$  at an average speed of  $6\text{km/hr}$  more than the original speed. If it takes 3 hours to complete total journey, what is its original average speed?

Ans.  $42\text{ km/hr}$

3. A train travels  $360\text{km}$  at a uniform speed. If the speed had been  $5\text{km/hr}$  more, it would have taken 1 hour less for the same journey. Find the speed of the train.

Ans.  $40\text{ km/hr}$

4. A motor boat whose speed in still water is  $18\text{km/hr}$  takes 1 hour more to go  $24\text{km}$  up stream than to return downstream to the same spot. Find the speed of the stream.

Ans.  $6\text{ km/hr}$

5. The sum of the ages of a man and his son is 45 years. Five years ago, the product of their ages was four times the man's age at the time. Find their present ages.

Ans.  $36\text{ years}, 9\text{ years}$

6. Is the following situation possible? If so, determine their present ages. The sum of the ages of two friends is 20 years. Four years ago, the product of their ages in years was 48.

Ans. *No*

7. A girl is twice as old as her sister. Four years hence, the product of their ages (in years) will be 160. Find their present ages.

Ans.  $6\text{ years}, 12\text{ years}$

9. The sum of the reciprocals of Rehman's ages (in years) 3 years ago and 5 years from now is  $1/3$ . Find his present age.

Ans.  $7\text{ years}$

10. If Zeba were younger by 5 years than what she really is, then the square of her age (in years) would have been 11 more than 5 times her actual age. What is her age now?

Ans.  $14\text{ years}$