

## Comprehensive Test Series

Chapter [3-4]

TIME: 1.5hr

MM: 45

### 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.** Draw the graph of the equations  $x - y + 1 = 0$  and  $3x + 2y - 12 = 0$ . Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region.
- Q 2.** Solve  $2x + 3y = 11$  and  $2x - 4y = -24$  and hence find the value of 'm' for which  $y = mx + 3$ .
- Q 3.** A leading library has fixed charge for the first three days and an additional charge for each day thereafter. Saritha paid Rs 27 for a book kept for seven days, while Susy paid Rs. 21 for the book she kept for five days. Find the fixed charge and the charge for each extra day.
- Q 4.** For which values of a and b does the following pair of linear equations have an infinite number of solutions?  
 $2x + 3y = 7$   
 $(a - b)x + (a + b)y = 3a + b - 2$
- Q 5.** The area of a rectangle gets reduced by 9 square units, if its length is reduced by 5 units and breadth is increased by 3 units. If we increase the length by 3 units and the breadth by 2 units, the area increases by 67 square units. Find the dimensions of the rectangle.
- Q 6.** One says, "Give me a hundred, friend! I shall then become twice as rich as you". The other replies, "If you give me ten, I shall be six times as rich as you". Tell me what is the amount of their (respective) capital?
- Q 7.** In a  $\Delta ABC$ ,  $\angle C = 3 \angle B = 2(\angle A + \angle B)$ . Find the three angles.

**Q 8.** Check whether the following is quadratic equation:

$$x^3 - 4x^2 - x + 1 = (x - 2)^3$$

**Q 9.** 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 hour more to cover the same distance. We need to find the speed of the train.

**Q 10.** The altitude of a right triangle is 7 cm less then its base. If the hypotenuse is 13 cm. Find the other two sides.

**Q 11.** A cottage industry produces a certain number of pottery articles in a day. It was observed on a particular day that the cost of production of each article (in rupees) was 3 more than twice the number of articles produced on that day. If the total cost of production on the day was Rs 90. find the number of articles produced and the cost of each article.

**Q 12.** Find two consecutive odd positive integers, sum of whose squares is 290.

**Q 13.** Find the root of the equation:

$$\frac{1}{x} - \frac{1}{x-2} = 3, x \neq 0, 2$$

**Q 14.** 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 tank separately. Find the time in which each tap can separately fill the tank.

**Q 15.** 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 16.** Find the values of k for each of the following quadratic equation, so that they have two equal roots.

$$2x^2 + kx + 3 = 0.$$