

# *Mathematics*

( *Linear equations in two variables* )

**MM.20**

1. The difference between two numbers is 26 and one number is three times the other number. Find them.

2. Solve for  $x$  and  $y$ :  $\frac{2}{\sqrt{x}} + \frac{3}{\sqrt{y}} = 2$ ,  $\frac{4}{\sqrt{x}} - \frac{9}{\sqrt{y}} = -1$ .

3. The sum of the digits of a two digit number is 7. If the digits are reversed, the new number will be 2 more than twice the original number. Find the number.

4. The sum of numerator and denominator of a fraction is 8. If 3 is added to both the numerator and the denominator, the fraction become  $\frac{3}{4}$ . Find the fraction.

5. Solve for  $x$  and  $y$ :  $\frac{10}{x+y} + \frac{2}{x-y} = 4$ ,  $\frac{15}{x+y} - \frac{5}{x-y} = -2$ .

6. If three times the larger of the two numbers is divided by the smaller one, we get 4 as quotient and 3 as the remainder. Also, if seven times the smaller number is divided by the larger one, we get 5 as quotient and 1 as remainder. Find the numbers.

7. For which value of  $k$  will the following pair of liner equations have no solutions:  
 $2x + y = 1$ ,  $(2k - 1)x + (a + b)y = 2k + 1$ .

8. Solve for  $x$  and  $y$ :  $6x + 3y = 6xy$ ,  $2x + 4y = 5xy$ .

9. Rohit travels 300 km to his home partly by train and partly by bus. He takes 4 hours if he travels 60 km by train and the remaining by bus. If he travels 100 km by train and remaining by bus, he takes 10 minutes longer. Find the speed of train and the bus.

10. Solve the following system of equation graphically:

$$2x + y = 6, \quad \text{and} \quad x - 2y + 2 = 0.$$

Find the vertices of the triangle formed by these two lines and  $x$  - axis. Also find the area of the triangle.