

**SHRI DHARMASTHALA MANJUNATHESHWARA SCHOOL,
ASHOKNAGAR, MANGALURU**

MATHEMATICS GRADE 10 - WORKSHEET 4

1. Solve for x : $\frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}$ ($a \neq 0, b \neq 0, x \neq 0$)
2. Solve the quadratic equation: $15x^2 - 28 = x$
3. Find the roots of the quadratic equation: $\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}$, $x \neq -4, 7$
4. The numerator of a fraction is 2 less than denominator. If 1 is added to both numerator and denominator, the sum of the new and original fraction is $\frac{19}{15}$.
Find the original fraction.
5. A farmer wishes to start a 100 sq.m. rectangular vegetable garden. Since he has only 30 m barbed wire, he fences three sides of the rectangular garden letting his house compound wall act as the fourth side fence. Find the dimensions of his garden.
6. A shopkeeper buys a number of books for ₹80. If he had bought 4 more books for the same amount, each book would have cost him ₹1 less. How many books did he buy?
7. Sum of the areas of the two squares is 468 m^2 . If the difference of their perimeters is 24 m , find the sides of the two squares.
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/hr more than that of the passenger train, find the average speed of the two trains.
9. Find whether $\frac{1}{2x+3} + \frac{1}{x-5} = 1$, $x \neq \frac{3}{2}, 5$ have real roots. If real roots exist, find them.
10. A train, travelling at a uniform speed for 360 km , would have taken 48 minutes less to travel the same distance if its speed were 5 km/h more. Find the original speed of the train.