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Questions:

5 Marks

1. An express train takes 1 hour less than a passenger train to travel 132 km between Mysore and Bengaluru (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.
2. Three consecutive positive integers are such that the sum of the square of the first and the product of the other two is 46, find the integers.
3. The perimeter of a right-angled triangle is 70 units and its hypotenuse is 29 units. Find the lengths of the other sides.
4. The perimeter of right-angled triangle is five times the length of its shortest side. The numerical value of the area of the triangle is 15 times the numerical value of the length of the shortest side. Find the lengths of the three sides of the triangle.
5. The difference between the ages of Sohrab and his father is 30 years. The difference of the squares of their ages is 1560. Find the age of soharb and his father.

2 Marks

6. In a class test, the sum of Shefali's marks in Mathematics and English is 30. Had she got 2 marks more in Mathematics and 3 marks less in English, the product of their marks would have been 210. Find her marks in the two subjects.
7. The diagonal of a rectangular field is 60 meters more than the shorter side. If the longer side is 30 metres more than the shorter side, find the sides of the field.
8. The difference of squares of two numbers is 180. The square of the smaller number is 8 times the larger number: Find the two numbers.
9. Two water taps together can fill a tank in $9\frac{3}{8}$ hours. The tap of larger diameter takes 10hours less than the smaller one to fill the tank separately. Find the time in which each tap can separately fill the tank.
10. The numerator of a fraction is one less than its denominator. If these is added to each of the numerator and denominators, the fraction is increased by $\frac{3}{28}$. Find the fraction.

Multiple Choice Question

11. If the length of the rectangle is one more than the twice its width, and the area of the rectangle is 300 square meter. What is the measure of the width of the rectangle?
    (a) -25 (b) 12 (c) 24 (d) 25
12. The roots of $x^2 - 8x + 12 = 0$, are
    (a) no real roots (b) x = 0 (c) real and equal (d) real and unequal
13. Reduction of a rupee in the price of onion makes the possibility of buying one more kg of onion for Rs.56. Find the original price of the onion per kg
    (a) 7,-8 (b) 8 (c) 7 (d) 1
14. The sum of the squares of three consecutive integers is 110, then the smallest positive integer is
    (a) 6 (b) 5 (c) 7 (d) 4
15. The quadratic equation $2x^2 - \sqrt{5}x + 1 = 0$ has
    (a) two distinct real roots (b) two equal real roots (c) no real roots (d) more than 2 real roots