1. Which of the following statements is necessarily true about division of the two rational numbers?

    a) Division of two rational numbers is closed under rational numbers.
    b) Division of two rational numbers is commutative.
    c) Both (a) and (b).
    d) None of the above.

2. Which step is wrong in the given factorization of a polynomial?

    Step I $x^2 -6x +8$
    Step II $x^2 -4x -2x + 8$
    Step III $x(x -4) -2(x -4)$
    Step IV $(x -2) (x -4)$

    a) Step I   b) Step II
    b) Step III   d) No step is wrong

3. If A, B, C and D are four quantities such that $A:B=3:4, B:C =8:9, C:D =15:16$. Then, $A :D$ is

    a) 5:8   b) 8 : 5
    b) 4 : 5   d) 5 : 4

4. The age of a man is same as his wife's age with the digits reversed. Then, sum of their ages is 99 yr and the man is 9 yr older than his wife. Man's age is

    a. 52 yr   b. 49 yr
    c. 44 yr   d. 54 yr

5. Which method is used in steps of factorization shown below?
    Step I $x^2 -49$
    Step II $(x)^2 -(7)^2$
    Step III $(x -7) (x + 7)$
    Step IV Factors are $(x -7)$ and $(x + 7)$.

    a. Identity
    b. Middle term factorization
    c. Re-arrangement

6. Simple interest on an amount for two years at the rate of 6% per annum is Rs. 300. Then, the compound interest on the same amount for the same time period and same rate of interest will be
    a) Rs. 310   b Rs 308
    c) Rs. 307   d Rs 309

7. A motorboat covers a certain distance downstream in a river in 5 h. It covers the same distance upstream in 11/2 h. The speed of the water is 1.5 km/h. Then, the speed of the boat in still water is

    a) 30 km/h   b) 30.5 km/h
    c) 20 km/h   d) 31.5 km/h

8. As we know that, weight and length of a rod is directly proportion. If 6 m long rod can weight 30 kg and 7 m long rod can weight 35 kg. Then, how much weight a 25 m long rod can have?

    a 105 kg   b 250 kg
    c 125 kg   d 140 kg

9. Two matchsticks each of length 7 cm are crossing each other such that they bisect each other at right angles. What shape will be formed by joining their end points?

    a Rectangle   b Square
    c Rhombus   d Parallelogram

10. If the difference between the simple and compound interest compounded every six months at the rate of 10% per annum at the end of two years is Rs.124.05. Then, the amount (principal) will be

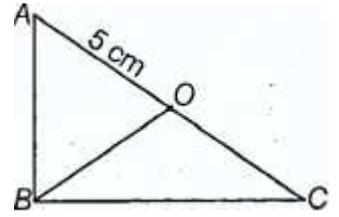   a Rs.10000   b Rs. 6000
    c Rs. 12000   d Rs. 8000

11. Nisha thinks a number and subtracts from 5/2 it. She multiplies the result by 8, the result now obtained is 3 times the same number, she thought of. What is the number?

    a)   5   b)   14
    c)   4   d)   None of these

12. Two pipes A and B can fill a tank in 30 min and 45 min, respectively. A is opened initially and when it is half filled B is also opened. How much time, it will take to fill the tank completely?

    a)   35 min   b) 24 min
    c)   25 min   d) 40 min

13. In adjoining figure, ABC is a right angled triangle and O is the mid point of the side opposite to the right angle. Then, the value of OB and OC, if $OA = 5$ cm, is

    a   10 cm each   b   8 cm and 5 cm
    c   5 cm each   d   2.5 cm each

14. The area of a circle is given by the expression $\pi x^2 + 6\pi x + 9\pi$ If the radius of the circle is a perfect square number. Then, the least possible value of x to be found is

    a. 6   b.   3
    c. 1   d.   13