1. REAL NUMBERS

3 MARK QUESTIONS

1. 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.

2. On dividing $x^3 - 3x^2 + x + 2$ by a polynomial $g(x)$, the quotient and remainder will be $x - 2$ and $-2x + 4$, respectively. Find $g(x)$.

3. Prove that, if a, b, c and d are positive rationals such that , $a + \sqrt{b} = c + \sqrt{d}$, then either $a = c$ and $b = d$ or b and d are squares of rationals.

4. Prove that $\sqrt{n}$ is not a rational number, if n is not a perfect square.

5. The length, breadth and height of a room are 8m 25cm, 6 m 75 cm and 4 m 50 cm, respectively. Find the length of the longest rod that can measure the three dimensions of the room exactly.

6. Is this possible to have the square of all positive integers of the form 3m+2, where m is a natural number. Justify your answer.

7. Find the largest positive integer that will divide 398, 436 and 542 leaving remainders 7, 11 and 15, respectively.

8. There are 156, 208 and 260 students in groups A, B and C, respectively. Buses are to be hired to take them for a field trip. Find the minimum number of buses to be hired, if the same number of students should be accommodated in each bus.

9. Show that one and only one out of $n, n + 3, n + 6$ *or* $n + 9$ is divisible by 4.

10. The sum of a number and its positive square root is $\frac{6}{25}$. Find the number.

11. Show that one and only one out of $n, n + 3, n + 6$ or $n + 9$ is divisible by 4.

12. Show that any positive odd integer is of the form $6q + 1$, $6q + 3$ or $6q + 5$, where q is some integer.

13. Write HCF and LCM of the smallest odd composite number and the smallest odd prime number. If an odd number p divides q^2, then will it divide q^3 also? Explain.

14. Prove that $\sqrt{5}$ is an irrational number .

15. Use Euclid's division lemma to show that the cube of any positive integer is of the form $9m, 9m + 1$ *or* $9m + 8$.

16. Using Euclid's division lemma, show that the square of any positive integer is either of the of the form $3m$ or $3m + 1$ for integer m.

17. Prove that one of any three consecutive positive integers must be divisible by 3.

18. Find the greatest number that will divide 445, 572 and 699 leaving remainder 4,5 and 6 respectively.

19. Use Euclid's division algorithm, find the largest number that divides 1251, 9377 and 15628 leaving remainders 1,2 and 3 respectively.

20. Use Euclid's division lemma to show that cube of any positive integer is of the form $9m, 9m + 1$ *or* $9m + 8$.

21. For some a and b, if HCF of 55 andn 210 is $210a + 55b$, then find the value of a and b.

ANSWERS

Q1. 25 *and* 18	Q2. $x^2 - x + 1$	Q3.-	Q4.-	Q5. $75\ cm$
Q6.-	Q7. 17	Q8. 12	Q9.-	Q10. $1/25$
Q11.-	Q12.-	Q13.-	Q14.-	Q15.-
Q16.-	Q17.-	Q18. 63	Q19. 625	Q20.-

Q21. $a = 5, b = -b$

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