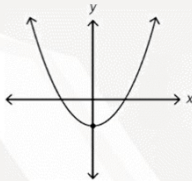1. A number is 10 more than its triple. Find the number?

2. A said to B, "I was 5 years older than you are now, when you were born. Today I am one and a half times of then." Find the present age of B?

3. A, B & C have total ₹240 with them. A gave some amount to each of B & C such that he doubles their amount and now left with ₹40. Find the initial amount with A?

4. Free notebooks were distributed equally among children of a class. The number of notebooks each child got was one-eighth of the number of children. Had the number of children been half, each child would have got 16 notebooks. Total how many notebooks were there?

5. Tom is four times as old as Jerry. In x years Tom will be three times as old as Jerry. How old is Jerry, in terms of x?
   (A) 2x (B) 3x (C) 4x (D) 8x (E) 12x

6. There are 2 boxes containing certain number of packets. If 10 packets were moved from 1st to 2nd box then there will be same number of packets in both boxes. If 20 packets are moved from 2nd to 1st box then 1st box will have double the number of packets as the 2nd box. Determine the number of packets in the 1st box?
   (A)40 (B) 60 (C) 80 (D) 100 (E) 120

7. Betaal is able to purchase x chocolates in ₹120. When price of chocolate increases by ₹1 then he is able to purchase 10 chocolates less than earlier in ₹120. Find x?

8. Solve the equations for (x,y)
   (i) 3x+4y = 11 & 4.5x+6y = 17
   (ii) $\frac{3}{x}+\frac{5}{y}=1$ & $\frac{2}{x}+\frac{3}{y}=5$

9. If roots of the equation $x^2-kx-20=0$, are α and β such that α > β then

Quantity A	Quantity B
α	0

10. Find the roots of the given quadratic equations
    (i) a²-4a=0
    (ii) $2m^2+30m+108=0$
    (iii) $4c^2-12c+3=0$

11. Find the quadratic equation if
    (i) Roots are 7 & -2
    (ii) Sum and product of the roots are 12 & -20 respectively
    (iii) If (2x + 3) & (x-5) are factors of quadratic function?

12. $F(x) = -x^2+3x-25$

Quantity A	Quantity B
Maximum value of F(x)	0

13. For what value of k, 3x+8y = 50 and 9x+24y = k equations are
    (i) Consistent   (ii) Inconsistent

14. If roots of the equation, $3m^2-4m+n=0$, are reciprocals of each other then find n?

15. If the parabola described the equation y = f(x) = x²+bx+c , cuts the x- axis at -4 and y-axis at 4. Find the 2nd point at which parabola cuts the x-axis?
    (A)-1 (B)4 (C)1 (D) -4 (E) 0

16. $x^2-kx+12 = 0$, has real roots then which of the following could be the value of k?(Mark all the correct answers)
    (A)12 (B)-12 (C)6.5 (D)4
    (E)-7.5 (F)7 (G) 0 (H) -6

17. X birds are seated on certain number of branches of a tree. If 16 birds are to be seated on each branch then 8 are left to be seated but if 20 birds are to be seated on each branch, 2 branches are left empty. Find X?

18. $x^2+2x+7 = 0$ and $ax^2+bx+c = 0$ has one root in common then find a:b:c if a , b & c are real numbers?

19. y = f(x) = ax²+bx+c , (x-2) is a factor of f(x) and f(-5) = 0 For what value of x ,f(x) is minimum?

20. Cost of 3 mangoes, 5 apples & 8 oranges is 50 and 7 apples, 9 mangoes & 4 oranges is 82. Find the cost of an orange, an apple and a mango?

21. Sum of a 2 digit number N and its reverse is a square.

Quantity A	Quantity B
Number of values N can take	6

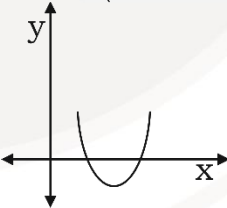22. Which of the following could be the equation of the figure above?

    (A) y = x - 2
    (B) y = x² - x
    (C) y = x² - 2
    (D) y² = x²
    (E) y = x³ - 2

23. Which of the following could be true about the given parabola? (Mark all the correct answers)?

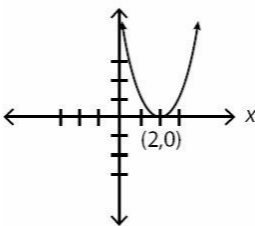
    (A) Sum of the roots is +ve
    (B) Equation has Unique roots.
    (C) D < 0
    (D) Y co-ordinate of vertex of parabola is negative.
    (E) a > 0

24. If the equation of the parabola pictured above is y = (x-h)² + k and (-3, n) is a point on the parabola, what is the value of n?

    (2,0)

25. Find the number of solutions for the (x,y) if x & y are natural numbers? 4x+5y = 114

Algebra-1

1. -5	2. 5	3. 140	4. 512	5. A
6. D	7. 40	8. i. No soln ii. $\dfrac{1}{22}, \dfrac{-1}{13}$	9. A	10. (4,0) (-9,-6) $\dfrac{3\pm\sqrt{6}}{2}$
11. (x-7)(x+4)=0 x^2-12x-20 = 0 (2x+3)(x-5)=0	12. B	13. i. 150 ii. other than 150	14. 3	15. A
16. A,B,E,F	17. 200	18.1:2:7	19. -1.5	20. 11
21. B	22. C	23. A,D,E	24. 25	25. 6 values