SINGLE OPTION CORRECT

1. In the equation $(x^2 + 54 = -37)$, transposing 54 to the right-hand side, we get:

   (A) $x^2 = -37 + 54$ (B) $x^2 = 97 - 54$ (C) $x^2 = -37 - 54$ (D) None of these

2. If $(7x + 3 = 17)$, which of the following is the root of the equation?

   (A) 2   (B) - 2   (C) 12   (D) - 12

3. Five years ago, I was 'x' years old. After 10 years, my age will be:

   (A) $(x + 15)$ years   (B) $(x + 10)$ years   (C) $(x - 15)$ years   (D) $(x - 10)$ years

4. Which of the following is not a linear equation in one variable?

   (A) $\frac{33zx+5x}{2x} = 0$ (B) $33(x + y) = 0$ (C) $\frac{x^2-9}{x-3}$ (D) $33y + 5 = 0$

5. The perimeter of the rectangle is 20cm. If the length of the rectangle is 6cm, then its breadth will be:

   (A) 4 cm   (B) 6 cm   (C) 10 cm   (D) 14 cm

6. The difference between two whole numbers is 66. The ratio of the two numbers is 2: 5. The two numbers are:

   (A) 60 and 6   (B) 100 and 33   (C) 110 and 44   (D) 99 and 33

7. Three consecutive integers add up to 51. The integers are:

   (A) 16, 17, 18   (B) 15, 16, 17   (C) 17, 18, 19   (D) 18, 19, 20

8. Find x, if $\frac{6x+1}{3} + 1 = \frac{x-3}{6}$

   (A) 1   (B) - 1   (C) 11   (D) - 11

9. Solve for x: $6(3x + 2) - 5(6x - 1) = 6(x - 3) - 5(7x - 6) + 12x$

   (A) - 1   (B) 1   (C) 0   (D) 2

10. A boat goes downstream and covers the distance between two ports in 4 hours, while it covers the same distance upstream in 5 hours. If the speed of the stream is 2 km/hr, find the speed of boat in still water

    (A) 15 km/hr   (B) 20 km/hr   (C) 24 km/hr   (D) 18 km/hr

11. A two-digit number is less than 20. The sum of the digits is double that of their product. What is the number?

   (A) 12   (B) 15   (C) 13   (D) 11

12. Find two parts of 34 such that $(4/7)^{th}$ of one part is equal to $(2/5)^{th}$ of the other.

   (A) 16, 18   (B) 14, 20   (C) 15, 19   (D) None of these

13. One-sixth of a number, when subtracted from the number itself gives 25. The number is _____.

   (A) 30   (B) 32   (C) 35   (D) 28

14. Find x , $\frac{2x+1}{3x-2} = \frac{9}{10}$

   (A) 2   (B) - 2   (C) 4   (D) - 4

15. How much pure alcohol be added to 400ml of 15% solution to make its strength 32%

   (A) 100   (B) 99   (C) 32   (D) 200

MULTIPLE OPTIONS CORRECT

1. Which of the following is linear equation in one variable.

   (A) $\frac{8+12y+6y^2+y^3}{4+y^2+4y}$ (B) $\frac{x^2+4x+4}{x+2}$ (C) $3xy + 2y + x$ (D) $x^2 + y^2 - 2xz$

2. Which of the following equations have infinitely many solutions?

   (A) $4x + 6 = 2(x + 3)$ (B) $2(x – 5) = 2x – 10$ (C) $3(x + 2) = 3x + 6$ (D) $x + 5 = x + 5$

3. Which of the following equations represent a linear equation with no solution?

   (A) $2x + 3 = 2(x + 1)$ (B) $3x – 2 = 2(x + 1)$

   (C) $4(x – 1) = 4x + 4$ (D) $5(x + 2) = 2(2x + 5)$

4. The perimeter of a rectangle is numerically equal to the area of rectangle. If width of rectangle is $5\frac{3}{2}$ cm, then its length is_.

   (A) $\frac{22}{3}$ (B) $7\frac{1}{3}$ (C) $2\frac{3}{4}$ (D) $\frac{11}{4}$

5. Milan has 66 in the form of fifty paisa and twenty-five paisa coins in the ratio of 8: 6, the number of coins of each kind are.

   (A) 96, 72   (B) 90, 78   (C) Option A is correct   (D) Option B is correct

6. Which of the following equations represent a linear equation with negative coefficients?

   (A) $-3x + 2 = 5$ (B) $4(x – 1) = 2x + 3$ (C) $2x – 3y = 4$ (D) $-5x – 2 = 3$

7. If you subtract ½ from a number and multiply the result by ½, you get $\frac{1}{8}$. What is the number?

   (A) 1/4   (B) 2/8   (C) 3/4   (D) 6/8

8. The base of an isosceles triangle is 4/3 cm. The perimeter of the triangle is $4\frac{2}{15}$ cm. What is the length of either of the remaining equal sides?

   (A) $\frac{5}{7}\, cm$ (B) $\frac{7}{5}\, cm$ (C) $1\frac{2}{5}\, cm$ (D) None

9. If $\frac{3y+4}{2-6y} = -\frac{2}{5}$, then y=_____

   (A) -8   (B) 8   (C) Both A, B   (D) Only A

10. Solution of given equation: $5x - 10 = 5x - 10$

   (A) 2   (B) 3   (C) 4   (D) 0

SUBJECTIVE PROBLEMS

Solve the following Equation

1. $\frac{2x}{3} - \frac{3x}{8} = \frac{7}{12}$

2. $(x + 2)(x + 3) + (x - 3)(x - 2) - 2x(x + 1) = 0$

3. $\frac{(15(2-x)- 5(x+6))}{1-3x} = 10$

4. $\frac{(9x-7)}{3x+5} = \frac{3x-4}{x+6}$

5. $\left(\frac{x+1}{x-4}\right)^2 = \frac{x+8}{x-2}$

6. Sunita is twice as old as Ashima. If six years is subtracted from Ashima's age and four years added to Sunita's age, then Sumita will be four times Ashima's age. How old were they two years ago?

7. Find x: $\frac{(x+2)(2x-3)- 2x^2 + 6}{x-5} = 2$

8. Seeta Devi has Rs 9 in fifty-paise and twenty five-paise coins. She has twice as many twenty- five paise coins as she has fifty-paise coins. How many coins of each kind does she have?

9. At a party, colas, squash and fruit juice were offered to guests. A fourth of the guests drank colas, a third drank squash, two-fifths drank fruit juice, and just three did not drink anything. How many guests were in all?

10. The base of an isosceles triangle is 4/3cm. The perimeter of the triangle is $4\frac{2}{15}$cm. What is the length of either of the remaining equal sides?

11. Normal yearly snowfall at the local ski resort is 12 inches more than twice the amount it received last season. The normal yearly snowfall is 62 inches. Construct a linear equation and solve to find what the snowfall was last season.

12. A streamer covers a certain distance downstream in a river in 5 hours. It covers the same distance upstream in $5\frac{1}{2}$ hours. If the speed of the stream is 1.5 km/hr, find the speed of the streamer in still water.

13. The numerator of a rational number is 2 more than 3 times the denominator. If the denominator is increased by 5 and the numerator is decreased by 5, the number obtained is 3/4. Find the rational number.

14. How much pure alcohol needs to be added to 500 ml of a 20% solution to make its strength 45%?

15. Total Number of cats and dogs are 2490. If 6.5% of cats is equal to 8.5% of dogs, find the number of cats and dogs.

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ANSWER KEY & SOLUTION

SINGLE OPTION CORRECT

1. C	2. A	3. A	4. B
5. A	6. C	7. A	8. B
9. A	10. D	11. D	12. B
13. A	14. C	15. A	

MULTI OPTIONS CORRECT

1. A, B	2. A, D	3. A, C	4. A, B
5. A, C	6. A, D	7. C, D	8. B, C
9. A, D	10. A, B, C, D		

SUBJECTIVE

1. $x = 2$

2. $x = 6$

3. $x = 1$

4. $x = 1/2$

5. 26/9

6. Sunita 28 years, Ashima 14 Years

7. $x = 10$

8. The number of fifty paise coins is $x = 9$

9. 180

10. $1\frac{2}{5}$

11. The snowfall last season was 25 inches.

12. Speed of streamer in still water = 31.5 km/hr.

13. 11/3

14. 209.09 ml

15. 1411, 1079