

### Chapter 3. EQUATIONS

#### QUADRATIC EQUATION

1) An equation of the form  $ax^2 + bx + c = 0$  is called

- A) Quadratic
- B) Cubic
- C) Bi-quadratic
- D) Linear

Answer: A

2) In the quadratic equation  $ax^2 + bx - c = 0$  the sum of roots is

- A)  $-b/c$
- B)  $-b/a$
- C)  $-c/a$
- D)  $a/c$

Answer: B

3) In the quadratic equation  $ax^2 - bx + c = 0$  the product of roots is

- A)  $c/a$
- B)  $b/a$
- C)  $a/c$
- D)  $-c/a$

Answer: A

4) The sum of cube roots of unity is

- A) 3
- B) 2
- C) 1
- D) 0

Answer: D

5) The roots of a quadratic equation  $ax^2 + bx + c = 0$  are

- A)  $\frac{-b \pm \sqrt{b^2 + 4ac}}{2a}$
- B)  $\frac{+b \pm \sqrt{b^2 - 4ac}}{2a}$
- C)  $\frac{-b \pm \sqrt{b^2 - 4ac}}{2}$
- D)  $\frac{-b \pm \sqrt{b^2 + 4ac}}{2a}$

Answer: C

6) The product of cube root of unity is

- A) 3
- B) 2
- C) 1
- D) 0

Answer: C

7) The number of real roots in cube roots of unity are

- A) 3
- B) 2
- C) 1
- D) 0

Answer: C

8) The roots of quadratic equation  $ax^2 - bx - c = 0$  are real if

- A)  $b^2 + 4ac \leq 0$
- B)  $b^2 - 4ac < 0$
- C)  $b^2 + 4ac \geq 0$
- D)  $b^2 - 4ac = 0$

Answer: C

9) The roots of quadratic equation  $ax^2 + bx - c = 0$  are equal if

- A)  $b^2 - 4ac < 0$
- B)  $b^2 + 4ac \geq 0$
- C)  $b^2 + 4ac = 0$
- D)  $b^2 - 4ac = 0$

Answer: C

10) The roots of quadratic equation  $ax^2 - bx - c = 0$  are imaginary if

- A)  $b^2 + 4ac < 0$
- B)  $b^2 - 4ac \geq 0$
- C)  $b^2 + 4ac = 0$
- D)  $b^2 - 4ac = 0$

Answer: A

11) If 4 & -5 are the roots, then quadratic equation will be

- A)  $x^2 - x - 20 = 0$
- B)  $x^2 - x + 20 = 0$
- C)  $x^2 + x - 20 = 0$
- D)  $x^2 + x + 20 = 0$

Answer: C

12) The value of  $\omega^{12}$  is

- A) 1
- B)  $\omega$
- C)  $\omega^2$
- D) 0

Answer: A

13) The square of a number when added to the number results in 6 then the number is

- A) 2
- B) -2
- C) -3
- D) Both A & C

Answer: D

14) The sum of roots of  $3x^2 - 4x + 7 = 0$  is

- A)  $4/3$
- B)  $7/3$
- C)  $-7/3$
- D)  $-4/3$

Answer: A

15) The product of roots of  $3x^2 + 5x - 2 = 0$  is

- A)  $5/3$
- B)  $3/5$
- C)  $-2/5$
- D)  $-2/3$

Answer: D

16) If  $3^{1+x} + 5 \cdot 3^x - 8 = 0$ , then  $x =$

- A) 8
- B) 5
- C) 3
- D) 0

Answer: D

17) If  $\sqrt{2x+1} + \sqrt{x} = 5$  then  $x =$

- A) 5
- B) 4
- C) 3
- D) 2

Answer: B

18) If  $\sqrt{5x-1} - \sqrt{2x} = 1$  then  $x =$

- A) 3
- B) 2
- C) 1
- D) 5

Answer: B

19) If  $\frac{\sqrt{2x+1} - \sqrt{x}}{\sqrt{2x+1} + \sqrt{x}} = \frac{1}{5}$ , then  $x =$

- A) 1
- B) 2
- C) 3
- D) 4

Answer: D

20) If one root of quadratic equation is  $4 + 5i$ , then equation

- A)  $x^2 - 8x + 41 = 0$
- B)  $x^2 + 8x + 41 = 0$
- C)  $x^2 - 41x + 8 = 0$
- D)  $x^2 - 41x - 8 = 0$

Answer: A

21) In the quadratic equation  $x^2 - 9 = 0$ , the sum of the root is

- A) 9
- B) -9

- C)  $1/9$
- D) 0

Answer: D

22) In the quadratic equation  $3x^2 - 5x = 0$ , the product of root is

- A)  $5/3$
- B)  $-5/3$
- C) 0
- D)  $3/5$

Answer: C

23) The roots of quadratic equation  $x^2 - 4x = 0$  are

- A) Imaginary
- B) Rational & Different
- C) Irrational
- D) Rational & Equal

Answer: B

24) If  $\omega, \omega^2$  are complex cube roots of unity  
Then  $\omega + \omega^2 =$

- A) 1
- B) -1
- C) 0
- D) none of these

Answer: B

25) If  $\omega, \omega^2$  are complex cube roots of unity then  $\omega^2 =$

- A)  $1/\omega$
- B)  $-\omega$
- C)  $-1/\omega$
- D) none of these

Answer: A

26)  $\left(\frac{-1 + \sqrt{-3}}{2}\right)^4 + \left(\frac{-1 - \sqrt{-3}}{2}\right)^4 =$

- A) 0
- B) 1
- C) -1
- D) 4

Answer: C

27) If  $\omega$  and  $\omega^2$  are cube roots of unity then  
 $(1 - \omega - \omega^2)^5 =$

- A) 0
- B) 1
- C) 32
- D) None of these

Answer: C

28) If the area of a rectangle is 56 & the length is one more than the breadth then the dimensions are

- A) -8, -7
- B) 8, 7
- C) 14, 4
- D) 28, 2

Answer: B

29) The sides of a right angle triangle are  $2x + 1$ ,  $2x$ ,  $2x - 1$ , then  $x$  is

- A) -1
- B)  $\frac{1}{2}$
- C) -2
- D) 2

Answer: D

30) If one root of  $4x^2 + 7hx - h^2 + 9 = 0$  is zero then  $h =$

- A) 0
- B) 3
- C) -3
- D)  $\pm 3$

Answer: D

### SYSTEMS OF EQUATIONS INVOLVING TWO VARIABLES

1) An equation having two variable is \_\_\_\_\_.

- A) Solvable
- B) Not solvable
- C) Both A and B
- D) None of these

Answer: B

2) Two linear equations having two variables have \_\_\_\_\_.

- A) One root
- B) Two roots
- C) Three roots
- D) None of these

Answer: B

3) A linear and a quadratic equation are \_\_\_\_\_.

- A) sometimes solvable
- B) Solvable
- C) Not solvable
- D) None of these

Answer: B

4) A quadratic equations have \_\_\_\_\_ roots.

- A) One
- B) Two
- C) Three
- D) Four

Answer: B

5) The two positive numbers which differ by 18 and whose product is 208 are \_\_\_\_\_.

- A) -26, -4
- B) 45, 5
- C) 26, 8
- D) 8, 34

Answer: C

6) One solution of the equations  $(x-1)^2 + (y+3)^2 = 25$  and  $x^2 + (y+1)^2 = 10$  is \_\_\_\_\_.

- A)  $\{(3, -1)\}$
- B)  $\{(-1, 3)\}$
- C)  $\{(1, 2)\}$
- D)  $\{(3, 2)\}$

Answer: C

7) Solution of the equations  $2x + 3y - z = 1$  and  $-x + 5y - 4z = 10$  is \_\_\_\_\_.

- A)  $\{(1, -2)\}$
- B)  $\{(3, 4)\}$
- C) no solution
- D) none of these

Answer: C