Quadratic Equations

Question 1.
One year ago, a man was 8 times as old as his son. Now his age is equal to the square of his son's age. Their present ages are
(a) 7 years, 49 years
(b) 5 years, 25 years
(c) 1 years, 50 years
(d) 6 years, 49 years

Answer: (a) 7 years, 49 years

Question 2.

If -5 is a root of the quadratic equation $2x^2 + px - 15 = 0$, then
(a) $p = 3$
(b) $p = 5$
(c) $p = 7$
(d) $p = 1$

Answer: (c) $p = 7$

Question 3.
The two consecutive odd positive integers, sum of whose squares is 290 are
(a) 13, 15
(b) 11, 13
(c) 7, 9
(d) 5, 7

Answer: (b) 11, 13

Question 4.
The value of $b^2 - 4ac$ for equation $3x^2 - 7x - 2 = 0$ is

(a) 49
(b) 0
(c) 25
(d) 73

Answer: (d) 73

Question 5.

Value(s) of k for which the quadratic equation $2x^2 - kx + k = 0$ has equal roots is
(a) 0
(b) 4
(c) 8
(d) 0 and 8

Answer: (d) 0 and 8

Question 6.
Find the two consecutive odd positive integers, sum of whose square is 290
(a) 15, 17
(b) 9, 11
(c) 13, 15
(d) 11, 13

Answer: (d) 11, 13

Question 7.

Which of the following are the roots of the quadratic equation, $x^2 - 9x + 20 = 0$ by factorisation?
(a) 3,4
(b) 4, 5
(c) 5, 6
(d) 6, 7

Answer: (b) 4, 5

Question 8.
Reduction of a rupee in the price of onion makes the possibility of buying one more kg of onion for Rs.56. Find the original price of the onion per kg?
(a) 7
(b) 1

(c) 7, -8
(d) 8

Answer: (d) 8

Question 9.

The equation $(x - 2)^2 + 1 = 2x - 3$ is a
(a) linear equation
(b) quadratic equation
(c) cubic equation
(d) bi-quadratic equation

Answer: (b) quadratic equation

Question 10.

Two candidates attempt to solve a quadratic equation of the form $x^2 + px + q = 0$. One starts with a wrong value of p and finds the roots to be 2 and 6. The other starts with a wrong value of q and finds the roots to be 2 and -9. Find the correct roots of the equation :
(a) 3, 4
(b) $-3, -4$
(c) 3, -4
(d) -3, 4

Answer: (b) $-3, -4$

Question 11.
The quadratic equation has degree
(a) 0
(b) 1
(c) 2
(d) 3

Answer: (c) 2

Question 12.
The polynomial equation $x(x + 1) + 8 = (x + 2)(x - 2)$ is
(a) linear equation
(b) quadratic equation
(c) cubic equation
(d) bi-quadratic equation

Answer: (a) linear equation

Question 13.
If $(x - a)$ is one of the factors of the polynomial $ax^2 + bx + c$, then one of the roots of $ax^2 + bx + c = 0$ is
(a) 1
(b) c
(c) a
(d) none of these

Answer: (c) a

Question 14.
The equation $x^2 - px + q = 0$ p, q e R has no real roots if :
(a) $p^2 > 4q$
(b) $p^2 < 4q$
(c) $p^2 = 4q$
(d) None of these

Answer: (b) $p^2 < 4q$

Question 15.
The roots of the equation $(b - c) x^2 + (c - a) x + (a - b) = 0$ are equal, then
(a) $2a = b + c$
(b) $2c = a + b$
(c) $b = a + c$
(d) $2b = a + c$

Answer: (d) $2b = a + c$

Question 16.
If the roots of $px^2 + qx + 2 = 0$ are reciprocal of each other, then
(a) P = 0
(b) p = -2
(c) p = ±2
(d) p = 2

Answer: (d) p = 2

Question 17.

If a, p are the roots of the equation $(x - a)(x - b) + c = 0$, then the roots of the equation $(x - a)(x - P) = c$ are

(a) a, b
(b) a, c
(c) b, c
(d) none of these

Answer: (a) a, b

Question 18.

The sum of the roots of the quadratic equation $3x^2 - 9x + 5 = 0$ is

(a) 3
(b) 6
(c) -3
(d) 2

Answer: (c) -3

Question 19.

The cubic equation has degree

(a) 1
(b) 2
(c) 3
(d) 4

Answer: (c) 3

Question 20.

The equation $2x^2 + kx + 3 = 0$ has two equal roots, then the value of k is

(a) $\pm\sqrt{6}$
(b) ± 4
(c) $\pm 3\sqrt{2}$
(d) $\pm 2\sqrt{6}$

Answer: (d) $\pm 2\sqrt{6}$

Question 21.

The quadratic equation whose one rational root is $3 + \sqrt{2}$ is

(a) $x^2 - 7x + 5 = 0$
(b) $x^2 + 7x + 6 = 0$
(c) $x^2 - 7x + 6 = 0$
(d) $x^2 - 6x + 7 = 0$

Answer: (d) $x^2 - 6x + 7 = 0$

Question 22.
A bi-quadratic equation has degree
(a) 1
(b) 2
(c) 3
(d) 4

Answer: (d) 4

Question 23.
If 7th and 13th term of an A.P. are 34 and 64 respectively, then its 18th term is
(a) 87
(b) 88
(c) 89
(d) 90

Answer: (c) 89

Question 24.
The quadratic equation $2x^2 - 3x + 5 = 0$ has?
(a) Real and distinct roots
(b) Real and equal roots
(c) Imaginary roots
(d) All of the above

Answer: (c) Imaginary roots