PRERNA EDUCATION

IIT/ MEDICAL/ FOUNDATION

SAMPLE QUESTIONS

QUADRATIC QUATIONS

Q.No. 1 If $x=-1/2$, is a solution of quadratic equation $3x^2+2kx-3=0$, then the k will be ?

(a) $\frac{3}{4}$ (b) $\frac{9}{4}$ (c) $\frac{-9}{4}$ (d) None of these

Ans. (c)

Q.No. 2 If the quadratic equation $px^2 - 2\sqrt{5}px + 15 = 0$ has two equal roots ,then find the value of p.

(a) P =4 (b) P = 3 (c) P = 5 (d) P = 6

Ans. (b)

Q.No. 3 Solution for $4x^2-4a^2x+\left(a^4-b^4\right)=0$, will be ?

(a) $\frac{a^2-b^2}{2},\frac{a^2+b^2}{2}$ (b) $\frac{a^2+b^2}{2},\frac{-a^2-b^2}{2}$ (c) $\frac{-a^2+b^2}{2},\frac{b^2-a^2}{2}$ (d) None of these

Ans. (a)

Q.No. 4 Solution for the equation $4x^2+4bx-\left(a^2-b^2\right)=0$

(a) $\frac{a+b}{2},\frac{-a-b}{2}$ (b) $\frac{-a+b}{2},\frac{a+b}{2}$ (c) $-\frac{a+b}{2},\frac{-a+b}{2}$ (d) $-\frac{a+b}{2},\frac{a-b}{2}$

Ans. (d)

Q.No. 5 Solve of $x^2-\left(\sqrt{3}+1\right)x+\sqrt{3}=0$

(a) $\sqrt{3},1$ (b) $-\sqrt{3},-1$ (c) $-\sqrt{3},1$ (d) $\sqrt{3},-1$

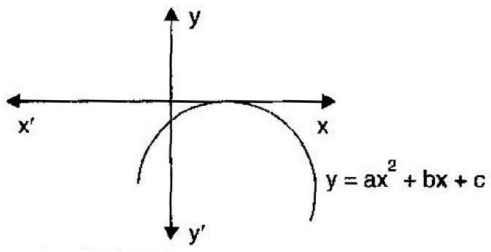
Ans. (a)

Q.No. 6 For what value of k, are the roots of the equation $3x^2+2kx+27=0$ are real and equal?

(a) ± 9 (b) ± 3 (c) ± 8 (d) ± 7

Ans. (a)

Q.No. 7 The graph of the polynomial $y=ax^2+bx+c$ is shown in the figure. Write one value of b^2-4ac.



(a) 1 (b) 2 (c) -1 (d) 0

Ans. (d)

Q.No. 8 If 1 is a zero of the polynomial $p(x)=ax^2-3(a-1)x-1$, then find the value of a.

(a) -1 (b)1 (c) 0 (d) None

Ans. (b)

Q.No. 9 Find the discriminate of the quadratic equation:

$3\sqrt{3}x^2+10x+\sqrt{3}=0$

(a) 64 (b) 65 (c) 66 (d) 67

Ans. (a)

Q.No. 10 Find that non-zero value of k, for which the quadratic equation $kx^2+1-2(k-1)x+x^2=0$ has equal roots. Hence find the roots of the equation.

(a) $k=3, x=\frac{1}{2},\frac{1}{2}$ (b) $k=-3, x=-\frac{1}{2},\frac{1}{2}$ (c) $k=3, x=\frac{1}{2},\frac{1}{2}$ (d) None

Ans. (a)

Q.No. 11 Solve for $x\sqrt{3}x^2-2\sqrt{2x}-2\sqrt{3}=0$

(a) $\sqrt{6},-\sqrt{6}$ (b) $\sqrt{6},\sqrt{3}$ (c) $\sqrt{\frac{2}{3}},-\sqrt{6}$ (d) $\sqrt{6},-\sqrt{\frac{2}{3}}$

Ans. (d)

Q.No. 12 Solve for $x: x^2+5x-\left(a^2+a-6\right)=0$

(a) $a-2,-a-3$ (b) $a+2,a+3$ (c) $a+2,a-3$ (d) None

Ans. (a)

Q.No. 13 Solve the quadratic equation by using quadratic formula: $\sqrt{2}x^2-\frac{3}{\sqrt{2}}x+\frac{1}{\sqrt{2}}=0$

(a) $-1,\frac{1}{2}$ (b) $1,\frac{1}{2}$ (c) $3,\frac{-3}{2}$ (d) 0,0

Ans. (b)

Q.No. 14 The numerator of a fraction is 3 less than its denominator. If 2 is added to both the numerator and the denominator, then the sum of the new fraction and original fraction is 29/30. find the original fraction.

(a) $\frac{8}{11}$ (b) $\frac{3}{10}$ (c) $\frac{17}{10}$ (d)None

Ans. (d)

Q.No. 15 Solve for $x: \frac{2}{x+1}+\frac{3}{2(x-2)}=\frac{23}{5x}, x\neq 0,-1,2$

(a) $4,\frac{23}{11}$ (b) $4,\frac{-23}{11}$ (c) $-4,6$ (d) $4,-6$

Ans. (b)

Q.No. 16 The diagonal of a rectangular field is 16 metres more than the shorter side. If the longer side is 14 metres more than the shorter side, then find the lengths of the sides of the field.

(a) $12m, 24m$ (b) $10m, 20m$ (c) $10m, 24m$ (d) None

Ans. (c)

Q.No. 17 A train travels at a certain average speed for a distance of 54 km and then travels a distance of 63 km at an average speed of 6 km/h more than the first speed. If it takes 3 hours to complete the total journey, what is its first speed ?

(a) 14 km/hr (b) 20 km/hr (c) 30 km/hr (d) None

Ans. (d)

Q.No. 18 If x = – 2 is a root of the equation $3x^2 + 7x + p = 0$, find the values of k so that the roots of the equation $x^2 + k(4x + k – 1) + p = 0$ are equal.

(a) $\frac{2}{3}, -1$ (b) $\frac{2}{3}, 1$ (c) $\frac{-2}{3}, -1$ (d) None

Ans. (a)

Q.No. 19 The total cost of a certain length of a piece of cloth is Rs 200. If the piece was 5 m longer and each metre of cloth costs Rs 2 less, the cost of the piece would have remained unchanged. How long is the piece and what is its original rate per metre ?

(a) 15m, Rs 20 (b) 20 m, Rs 10 (c) 30 m, Rs 15 (d) None

Ans. (b)