QUESTIONS

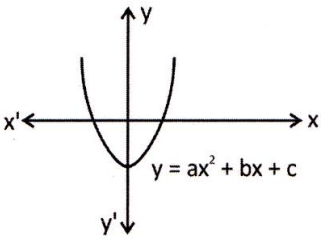
1. If the zeroes of the quadratic polynomial $x^2 + (a+3)x + b$ are 3 and - 4, then

(a) $a = 2,\ b = 6$ (b) $a = -2,\ b = -12$

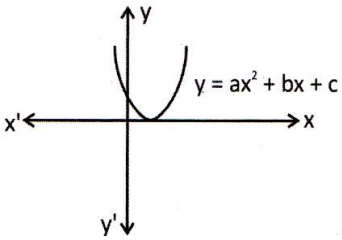
(c) $a = 3,\ b = 4$ (d) $a = 4,\ b = -3$

(e) None of these

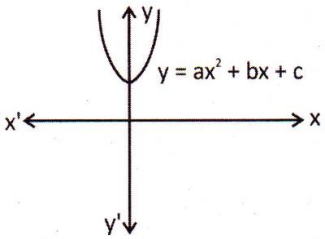
2. See the graph given below:



(i)



(ii)



(iii)

Based on these graphs, identify the correct statement among the following:

(a) In case ii, the quadratic polynomial $ax^2 + bx + c$ has two distinct zeroes.

(b) In case i, the quadratic polynomial $ax^2 + bx + c$ has two equal zeroes.

(c) In case iii, the quadratic polynomial has no zero.

(d) All the above

(e) None of these

3. Which one among the following statements is incorrect?

(a) Graph of a linear polynomial is a straight line whereas the graph of a quadratic polynomial has one of the two shapes of parabola either open upwards $\cup$ or open downwards $\cap$.

(b) The shape of the parabola depends on the value of 'a' of the quadratic polynomial $ax^2 + bx + c$.

(c) The zeroes of a quadratic polynomial $ax^2 + bx + c,\ a \neq 0$ are y coordinates of the points where the parabola $y = ax^2 + bx + c$ intersects the y-axis.

(d) A real number m is a zero of the polynomial p(x) if p (m) = 0

(e) None of these

4. A polynomial of degree n has _____

(a) two zeroes (b) n zeroes

(c) atleast n zeroes (d) atmost n zeroes

(e) None of these

5. **If one zero of the quadratic polynomial x^2+5x+k is 3 then second zero of this polynomial is _____**

(a) 5 (b) -3

(c) -5 (d) -8

(e) None of these

6. **If the zeroes of a quadratic polynomial ax^2+bx+c are both negative, then**

(a) a is positive., b and c are negative

(b) a is negative/ b and c are positive

(c) a and c are negative, b is positive

(d) a, b and c all have the same sign

(e) None of these

7. **If $(3+\sqrt{3})$ is one of the zeroes of the quadratic polynomial $x^2 + mx + 6$ then find the second zero.**

(a) $-\sqrt{3}$ (b) $3-\sqrt{3}$

(c) $3+\sqrt{3}$ (d) $\sqrt{3}$

(e) None of these

8. **For a quadratic polynomial $2x^2 - 8x + b$, sum of its roots is 4 and one of the roots is $\frac{4+\sqrt{2}}{2}$, then the value of b is_____**

(a) 3 (b) 6

(c) 7 (d) 8

(e) None of these

9. **If the zeroes of the quadratic polynomial $p(x)=abx^2-(b^2-ac)x-bc$ are α & β, then**

(a) $\alpha=\frac{-b^2}{a}$ and $\beta=\frac{-c^2}{b}$ (b) $\alpha=\frac{a}{b}$ and $\beta=\frac{b}{c}$

(c) $\alpha=\frac{b}{a}$ and $\beta=\frac{-c}{b}$ (d) $\alpha=\frac{-a}{b}$ and $\beta=\frac{c}{b}$

(e) None of these

10. **If α and β are zeroes of the quadratic polynomial $p(x)=ax^2-bx+c$, then the value of $\frac{\alpha}{\beta}+\frac{\beta}{\alpha}$ is _____ .**

(a) $\frac{b^2+ac}{ac}$ (b) $\frac{b^2-ac}{ac}$

(c) $\frac{b^2+2ac}{ac}$ (d) $\frac{c^2+2ac}{ac}$

(e) None of these

11. **If the zeroes of the quadratic polynomial $ax^2 - x - b$ are $\frac{-3}{2}$ and $\frac{5}{3}$, then**

(a) a = 15, b = 6 (b) a = 6, b = 15

(c) a = 12, b = 4 (d) a = 4, b = 12

(e) None of these

12. **If $p(x) = 25x^2 - 15x - a$ where α and β are the zeroes of the polynomial, also if it is given that $\alpha^3 + \beta^3 = \frac{63}{125}$, then**

(a) a = 5 (b) roots are $\frac{-1}{5}$ and $\frac{4}{5}$

(c) a = 3 (d) roots are $\frac{1}{5}$ and $\frac{-2}{5}$

(e) None of these

13. **If two zeroes of the cubic polynomial $px^2 + qx^2 + rx + s$ are 0, then the third zero is _____**

(a) $\frac{p}{q}$ (b) $\frac{-p}{q}$

(c) $-\frac{p}{q}$ (d) 0

(e) None of these

14. **If one of the zeroes of a cubic polynomial of the form $x^3 + ax^2 + bx + c$ is the negative of the other, then**

(a) a is of negative sign and b and c are of positive sign

(b) b is of negative sign and a and c are of positive sign

(c) a and c are of opposite signs and b is of negative sign

(d) a and b are of opposite signs and c is of positive sign

(e) None of these

15. **If all the zeroes of the cubic polynomial $x^3 + cx^2 + dx + b$ are equal, then**

(a) cd = 9 b (b) bd = 8 b

(c) cd = 6 b (d) bd = 8 b

(e) None of these

16. **If p and q are the of the polynomial $bx^2 + cx + a$, value of $\frac{1}{p^3} + \frac{1}{q^3}$**

(a) $\frac{3abc - c^3}{ab^2}$ (b) $\frac{3abc + c^3}{ab^2}$

(c) $\frac{3abc - c^3}{a^2b}$ (d) $\frac{3abc + c^3}{a^2b}$

(e) None of these

17. **If the zeroes of the polynomial** $6x^2 + 7\sqrt{3}x - 15 = 0$ **are** α **&** β**, then**

(a) $\alpha = \frac{-\sqrt{3}}{2}$ & $\beta = \frac{5\sqrt{3}}{3}$

(b) $\alpha = -\sqrt{3}$ & $\beta = 5\sqrt{3}$

(c) $\alpha = \frac{\sqrt{3}}{2}$ & $\beta = \frac{-5\sqrt{3}}{3}$

(d) $\alpha = 5\sqrt{3}$ & $\beta = -\sqrt{3}$

(e) None of these

18. **If** α **&** β **are the zeroes of the quadratic polynomial** $3x^2 - 11x + 6$, **then find the polynomial whose zeroes are** $(2\alpha + \beta)$ **and** $(\alpha + 2\beta)$

(a) $k\left(x^2 - 5x + \frac{270}{9}\right)$, k is any non-zero real number

(b) $k\left(x^2 - 11x + \frac{260}{9}\right)$, k is any non-zero real number

(c) $k(3x^2 - 3x + 26)$, k is any non-zero real number

(d) $k(2x^2 - 5x + 27)$, k is any non-zero real number

(e) None of these

19. **If** α, β **&** γ **are the roots of the equation** $x^3 - 4x^2 - 53x + 168$ **then the relation between their roots is**

_____

(a) $3\alpha + \beta = 2\gamma$ (b) $3\alpha + 4\beta = 4\gamma$

(c) $3\alpha + \beta = 4\gamma$ (d) $\alpha + 2\beta = \gamma$

(e) None of these

20. **What must be subtracted from** $6x^4 + 16x^3 + 15x^2 - 8x + 9$, **so that it is exactly divisible by** $3x^2 + 5x - 2$**?**

(a) $-19x + 15$ (b) $19x + 16$

(b) $13x + 19$ (d) $19x - 15$

(e) None of these

21. **If** $p(x) = x^3 - 10x^2 + 31x - 30$ **and** $q(x) = x^3 - 12x^2 + 41x - 42$**, then find the LCM of the polynomials p(x) and q(x).**

(a) $x^4 - 17x^3 + 101x^2 - 247x + 210$

(b) $x^3 - 36x^2 + 90x + 105$

(c) $x^4 + 18x^3 - 95x^2 + 234x - 119$

(d) $x^3 - 18x^2 + 108x + 114$

(e) None of these

22. **What should be added to $\frac{1}{x^2 - 12x + 32}$ to get $\frac{1}{x^2 - 11x + 30}$**

(a) $\frac{2x^2 - 25x + 96}{(x-6)(x-5)(x-4)(x-8)}$ (b) $\frac{2x^2 - 25x - 66}{(x-6)(x-5)(x-4)(x-8)}$

(c) $\frac{2x^2 - 25x + 66}{(x-6)(x-5)(x-4)(x-8)}$ (d) $\frac{2}{(x-6)(x-5)(x-4)(x-8)}$

(e) None of these

23. **If $p(x) = x^2 + x + 1$ and $q(x) = x^3 - x + 1$, then the HCF of p(a) - p(b) and q(a)**

(a) $a + b + 1$ (b) $a - b + 1$

(c) $a - b$ (d) $a + b$

(e) None of these

24. **If $(x^2 + x - 1)$ is a factor of $x^4 + 9x^3 + qx^2 - 8x + 5$ then find the values of p and q.**

(a) $p = -3,\ q = 4$ (b) $p = 4,\ q = -3$

(c) $p = 2,\ q = -4$ (d) $p = -4,\ q = 2$

(e) None of these

25. **If the zeroes of the algebraic expression $3ax^2 + x(3b + 5a) + 5b$ are $\frac{-3}{7}$ and $\frac{-5}{3}$, then find the value of $\frac{a}{b}$.**

(a) $\frac{1}{3}$ (b) $\frac{4}{5}$

(c) $\frac{7}{3}$ (d) 3

(e) None of these

26. **If degree of both p(x) and [p(x) + q(x)] is 15 then degree of q(x) can be**

(a) 12 (b) 10

(c) 15 (d) any one of the above

(e) None of these

27. **If the LCM of p(x) and q(x) is $a^9 - b^9$ then their HCF can be**

(a) (a - b) (b) $\left(a^2 + b^2 + ab\right)$

(c) $a^6 + b^6 + a^3b^3$ (d) All the above

(e) None of these

28. **If $m = \frac{a+1}{a-1}$ and $n = \frac{a-1}{a+1}$, then $m^2 + n^2 - 3mn$ is equal to**

(a) $\frac{-a^4 + 18a^2 - 1}{a^4 - 2a^2 + 1}$ (b) $\frac{a^4 - 9a^2 + 3}{a^4 + 2a^2 + 1}$

(c) $\frac{a^4 + 9a^2 - 3}{a^4 - 2a^2 + 1}$ (d) $\frac{-a^4 + 16a^2 + 1}{a^4 - 2a^2 + 1}$

(e) None of these

29. **Solve** $\frac{p^2(q-r)^2}{(p+r)^2-q^2}+\frac{q^2-(p-r)^2}{(p+q)^2-r^2}+\frac{r^2-(p-q)^2}{(q+r)^2-p^2}$

(a) $\frac{1}{p+q+r}$ (b) p + q + r

(c) 0 (d) 1

(e) None of these

30. **Find the value of a - b so that** $8x^4+14x^3-ax^2+bx+2$ **is exactly divisible by** $4x^2+3x-2$**.**

(a) 4 (b) 6

(c) 9 (d) -3

(e) None of these

31. **If two zeroes of the polynomial** $f(x)=x^4-2x^3-18x^2-6x+45$ **are** $-\sqrt{3}$ **and** $\sqrt{3}$ **, then find the sum of other two zeroes.**

(a) 0 (b) -1

(c) -2 (d) 1

(e) None of these

32. **If the zeroes of the polynomial** $x^3-15x^2+66x-80$ **are** α, β **&** γ **and it is also given that** $2\beta=\alpha+\gamma$ **then**

(a) $\alpha=4$ (b) $\gamma=3$

(c) $\gamma=7$ (d) $\alpha=2$

(e) None of these

33. **If** α **&** β **are the zeroes of the polynomial** x^2+6x-k **such that** $2\beta+\alpha=11$ **then k is equal to**

(a) 18 (b) -23

(c) 391 (d) -391

(e) None of these

34. **If p and q are the zeroes of the quadratic polynomial** $f(x)=cx^2+ax+b$ **then the value of** p^4+q^4 **is _____**

(a) $\frac{(a^2-2bc)^2-b^2c^2}{c^4}$ (b) $\frac{(a^2-2bc)^2-2b^2c^2}{c^4}$

(c) $\frac{(b^2-2ac)^2-a^2c^2}{c^4}$ (d) $\frac{(b^2-2ac)^2-2a^2c^2}{c^4}$

(e) None of these

35. **If on dividing the polynomial** $f(x)=x^3-4x^2+7x-9$ **by a polynomial g(x), the quotient q(x) and the remainder r(x) are** $(x-3)$ **and** $(2x-3)$ **respectively, the polynomial g(x) is ____**

(a) x^2+x+1 (b) x^2-x+2

(c) $2x^2+x+1$ (d) $2x^2-x+2$

(e) None of these

36. **If the zeroes of the polynomial $f(x) = ax^3 + 3bx^2 + 3cx + d$ are in A.P. then $2b^3 + a^2d$ is equal to _____**

(a) a^2bc (b) $3abc$

(c) $2b^2ac$ (d) abc

(e) None of these

37. **If f(x) = $3x^4 + 6x^3 - 2x^2 - 10x - 5$ and two of its zeroes are - 1, - 1, then the other two zeroes are _____**

(a) $\sqrt{\frac{3}{5}}, -\sqrt{\frac{3}{5}}$ (b) $\sqrt{\frac{2}{5}}, -\sqrt{\frac{2}{5}}$

(c) $\sqrt{\frac{5}{3}}, -\sqrt{\frac{5}{3}}$ (d) $\sqrt{\frac{5}{4}}, -\sqrt{\frac{5}{4}}$

(e) None of these

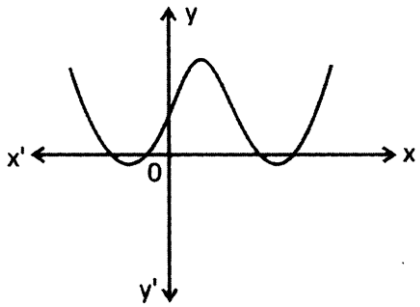
38. **If α, β, γ are the zeroes of the polynomial $p(x) = x^3 - ax^2 + bx - c$, then $\frac{1}{\alpha\beta} + \frac{1}{\beta\gamma} + \frac{1}{\alpha\gamma} =$_____**

(a) $\frac{a}{b}$ (b) $\frac{b}{c}$

(c) $\frac{a}{c}$ (d) $\frac{c}{d}$

(e) None of these

39. **The graph of a polynomial f(x) is shown below:**



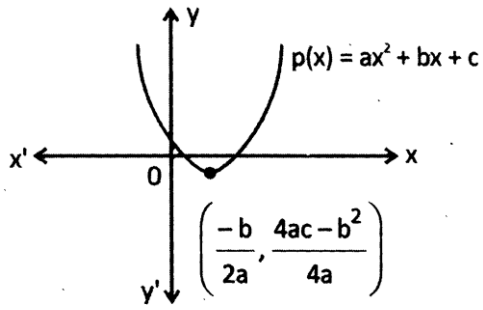
The number of real zeroes of the polynomial f(x) is _____

(a) 1 (b) 2

(c) 3 (d) 4

(e) None of these

40. **The graph of a polynomial $p(x) = ax^2 + bx + c$ is shown below:**



Based on the above graph which one is correct?

(a) $a > 0, b > 0, c > 0$ (b) $a < 0, b < 0, c > 0$

(c) $a < 0, b < 0, c < 0$ (d) $a > 0, b < 0, c > 0$

(e) None of these

ANSWER – KEY				
1. (b)	**2.** (c)	**3.** (c)	**4.** (d)	**5.** (d)
6. (d)	**7.** (b)	**8.** (c)	**9.** (c)	**10.** (b)
11. (b)	**12.** (b)	**13.** (c)	**14.** (c)	**15.** (a)
16. (e)	**17.** (c)	**18.** (b)	**19.** (c)	**20.** (a)
21. (a)	**22.** (c)	**23.** (c)	**24.** (b)	**25.** (b)
26. (d)	**27.** (d)	**28.** (a)	**29.** (d)	**30.** (c)
31. (c)	**32.** (d)	**33.** (c)	**34.** (b)	**35.** (b)
36. (b)	**37.** (c)	**38.** (c)	**39.** (d)	**40.** (d)