

Date Planned : __ / __ / __	Daily Tutorial Sheet - 10	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level - 2	Exact Duration : _____

116. If $b^2 > 4ac$, then $a(x^2 + 4x + 4)^2 + b(x^2 + 4x + 4) + c = 0$ has distinct real roots if : 
- (A) a and b are of same sign (B) b and c are of same sign
(C) a and c are of same sign (D) a , b and c are of same sign
117. If $(\lambda^2 + \lambda - 2)x^2 + (\lambda + 2)x < 1$ for all $x \in R$, then λ belongs to the interval :
- (A) $(-2, 1)$ (B) $\left(-2, \frac{2}{5}\right)$ (C) $\left(\frac{2}{5}, 1\right)$ (D) None of these
118. The integral value of k for which the roots of the equation $(k-2)x^2 + 8x + k + 4 = 0$ are real, distinct and negative is : 
- (A) 0 (B) 2 (C) 3 (D) 4
119. For all $x \in R$, if $mx^2 - 9mx + 5m + 1 \geq 0$, then complete values of m is given by interval.
- (A) $\left(-\frac{4}{61}, 0\right)$ (B) $\left[0, \frac{4}{61}\right]$ (C) $\left[0, \frac{4}{61}\right)$ (D) None of these
120. The quadratic equations $x^2 - 6x + a = 0$ and $x^2 - cx + 6 = 0$ have one root in common. The other roots of the first and second equations are integers in the ratio 4 : 3. Then the common root is :
- (A) 4 (B) 3 (C) 2 (D) 1
121. If $a, b, c \in R$ and the roots of $ax^2 + bx + c = 0$ are equal in magnitude but opposite in sign, then which of the following can be true :
- (A) $a < 0, c < 0$ (B) $a < 0, c > 0, b > 0$ (C) $a > 0, b = 0, c < 0$ (D) $a > 0, b = 0, c > 0$
122. If $\alpha \neq \beta$ and $\alpha^2 = 5\alpha - 3, \beta^2 = 5\beta - 3$, then the equation having α/β and β/α as its roots, is :
- (A) $3x^2 + 19x + 3 = 0$ (B) $3x^2 - 19x + 3 = 0$ (C) $3x^2 - 19x - 3 = 0$ (D) $x^2 - 19x + 3 = 0$
123. If $0 < a < b < c < d$, then the quadratic equation $ax^2 + [1 - a(b+c)]x + abc - d = 0$ 
- (A) Real and distinct roots out of which one lies between c and d
(B) Real and distinct roots out of which one lies between a and b
(C) Real and distinct roots out of which one lies between b and c
(D) Non-real roots
124. If α, β are the roots of the equation $ax^2 + bx + c = 0$ such that $\beta < \alpha < 0$, then the quadratic equation whose roots are $|\alpha|, |\beta|$ is given by : 
- (A) $|a|x^2 + |b|x + |c| = 0$ (B) $ax^2 - |b|x + c = 0$ (C) $|a|x^2 - |b|x + |c| = 0$ (D) $a|x^2| + b|x| + c = 0$
125. If the roots of the equation $bx^2 + cx + a = 0$ be imaginary, then for all real values of x , the expression $3b^2x^2 + 6bcx + 2c^2$ is : 
- (A) Less than $4ab$ (B) Greater than $-4ab$ (C) Less than $-4ab$ (D) Greater than $4ab$