Quadratic Equations : Worksheet -13

1. If one of the roots of $x^2+(1+k)x+2k=0$ is twice the other, then $\frac{k^2+1}{k}=$ [ ]

   a] 2 b] 1 c] 4 d] 7

2. If α and β are the roots of the equation $x^2+9x+18=0$, then the quadratic equation having the roots $\alpha+\beta$ and $\alpha-\beta$ is _ _ _ _ _, where $(\alpha>\beta)$. [ ]

   a] $x^2+6x-27=0$ b] $x^2-9x+27=0$

   c] $x^2-9x-7=0$ d] $x^2+6x+27=0$

3. The roots of a pure quadratic equation exists only if _ _ _ _ [ ]

   a] $a>0, c<0$ b] $c>0, a<0$ c] $a>0, c\le 0$ d] Both (a) and (b)

4. The equation $x+\frac{5}{3-x}=3+\frac{5}{3-x}$ has [ ]

   a] No real root b] One real root

   c] Two equal roots d] Infinite roots

5. Given α, β are roots of the quadratic equation $ax^2+bx+c=0$, then the quadratic with $2\alpha+\beta$, $\alpha+2\beta$ as its roots is [ ]

   a] $a^2x^2+3abx+(2b^2+ac)=0$ b] $b^2x^2+3abx+(2c^2+ab)=0$

   c] $c^2x^2+3acx+(2b^2+bc)=0$ d] None of these

6. If the roots of the quadratic equation $(a-b)x^2+(b-c)x+(c-a)=0$ are equal, then [ ]

   a] $2a=b+c$ b] $2b=a+c$

   c] $2c=a+b$ d] None of these

7. If the roots of the equations $2ax^2+3bx-6=0$ are $-1, 3$ then a and b are respectively [ ]

a] $1, -4/3$ b] $1, 1$ c] $-2, 4$ d] $2, -3/2$

8. If α, β are roots of the equation $x^2+ax+b=0$, then $\alpha^3+\beta^3$ = [ ]

a] $3ab-a^3$ b] $3ab-b^3$ c] $3a-a^3$ d] $3b-b^3$

9. Consider the equation $ax^2+2(b-c)x+(2b-2c-a)=0$, which of the following are true about the roots of the given quadratic equation? [ ]

(i) Both roots real.

(ii) If a + c = b, then both roots are real and equal.

(iii) Roots are imaginary with real part equals to 0.

a] Only (i) b] Only (ii) c] (i) & (ii) d] Only (iii)

10. If x^2+px+q and x^2+qx+p have a common factor then [ ]

a] $p+q-1=0$ b] $p+q+1=0$

c] $2p+q+1=0$ d] $p+2q+1=0$