

AKSHAYA EDUCATIONAL FOUNDATION

QUADRATIC EQUATION

1. Find the values of k for which the roots are real and equal in each of the following equations:

i) $kx^2 - 2\sqrt{5}x + 4 = 0$

Ans. $k = \frac{5}{4}$

ii) $(3k+1)x^2 + 2(k+1)x + k = 0$

Ans. $k = \frac{-1}{2}, 1$

2. Find the values of k for which the following equations have real and equal roots:

C) $(k+1)x^2 - 2(k-1)x + 1 = 0$

Ans. $k = 0, 3$

3. Find the values of k for which the following equations have real roots

i) $x^2 - 4kx + k = 0$

Ans. $k = 0, \frac{1}{4}$

5. For what value of k , $(4-k)x^2 + (2k+4)x + (8k+1) = 0$, is a perfect square.

Ans. $k = 0, 3$

6. If -5 is a root of the quadratic equation $2x^2 + px - 15 = 0$ and the quadratic equation $p(x^2 + x) + k = 0$ has equal roots, find the value of k .

Ans. $k = 2$

7. If 1 is a root of the quadratic equation $3x^2 + ax - 2 = 0$ and the quadratic equation $a(x^2 + 6x) - b = 0$ has equal roots, find the value of b .

Ans. -9

8. If the roots of the equation $(b-c)x^2 + (c-a)x + (a-b) = 0$ are equal, then prove that $2b = a + c$.

Ans.

9. If p, q are real and $p \neq q$, then show that the roots of the equation

$(p-q)x^2 + 5(p+q)x - 2(p-q) = 0$ are real and unequal.

Ans.

10. Show that the equation $2(a^2 + b^2)x^2 + 2(a+b)x + 1 = 0$ has no real roots, when $a \neq b$.

Ans.