

1. Find the values of  $p$  such that the quadratic equation  $(p - 12)x^2 - 2(p - 12)x + 2 = 0$  has equal roots.
2. Solve the equation:  $10ax^2 + 15ax - 6x - 9 = 0, a \neq 0$
3. One root of the equation  $2x^2 - 8x - m = 0$  is  $\frac{5}{2}$ . Find the other root and the value of  $m$ .
4. For what value of  $k$  the equation  $4x^2 - 2(k + 1)x + (k + 1) = 0$  has real and equal roots.
5. Find the roots of the quadratic equation:  $(x + 3)(x - 1) = 3\left(x - \frac{1}{3}\right)$
6. Solve for  $x$ :  $4x^2 - 2(a^2 + b^2)x + a^2b^2 = 0$
7. Solve for  $x$ :  $4x^2 - 4a^2x + (a^4 - b^4) = 0$
8. Using the quadratic formula, solve the following quadratic equation for  $x$ :  
 $x^2 - 4ax + 4a^2 - b^2 = 0$
9. Solve for  $x$ :  $16x^2 - 8a^2x + (a^4 - b^4) = 0$
10. Solve for  $x$ :  $36x^2 - 12ax + (a^2 - b^2) = 0$