1. Solve :

(i) $(x + 5)(x - 5) = 24$

(ii) $3x^2 - 2\sqrt{6}x + 2 = 0$

(iii) $3\sqrt{2}x^2 - 5x - \sqrt{2} = 0$

(iv) $2x - 3 = \sqrt{2x^2 - 2x + 21}$

2. One root of the quadratic equation $8x^2 + mx + 15 = 0$ is $\frac{3}{4}$. Find the value of m. Also, find the other root of the equation.

3. Show that one root of the quadratic equation $x^2 + (3 - 2a)x - 6a = 0$ is -3. Hence, find its other root.

4. If $p - 15 = 0$ and $2x^2 + px + 25 = 0$; find the values of x.

5. Find the solution of the quadratic equation $2x^2 - mx - 25n = 0$; if $m + 5 = 0$ and $n - 1 = 0$.

6. If m and n are roots of the equation :

$\frac{1}{x} - \frac{1}{x-2} = 3$; where $x \neq 0$ and $x \neq 2$; find $m \times n$.

7. Solve, using formula :

$$x^2 + x - (a + 2)(a + 1) = 0$$

8. Solve the quadratic equation $8x^2 - 14x + 3 = 0$

(i) When $x \in I$ (integers)

(ii) When $x \in Q$ (rational numbers)

9. Find the value of m for which the equation $(m + 4)x^2 + (m + 1)x + 1 = 0$ has real and equal roots.

10. Find the values of m for which equation $3x^2 + mx + 2 = 0$ has equal roots.

Also, find the roots of the given equation.

11. Find the value of k for which equation $4x^2 + 8x - k = 0$ has real roots.

12. Find, using the quadratic formula, the roots of the following quadratic equations, if they exist

(i) $3x^2 - 5x + 2 = 0$

(ii) $x^2 + 4x + 5 = 0$

13. Solve :

(i) $\frac{1}{18-x} - \frac{1}{18+x} = \frac{1}{24}$ and $x > 0$.

(ii) $(x - 10)\left(\frac{1200}{x} + 2\right) = 1260$ and $x < 0$.