1. $p^2 + 14p - 38 = 0$

$p^2 + 14p = 38$

$p^2 + 14p + 49 = 38 + 49$

$(p^2 + 7)(p + 7) = 87$

$\sqrt{(p+7)^2} \overset{\pm}{=} \sqrt{87}$

$p + 7 = \pm\sqrt{87}$

$\boxed{p = \pm\sqrt{87} - 7}$

2. $v^2 + 6v - 59 = 0$

$v^2 + 6v = 59$

$v^2 + 6v + 9 = 59 + 9$

$(v + 3)(v + 3) = 68$

$(v + 3)^2 = 68$

$v + 3 = \pm\sqrt{68}$

$v = \pm\sqrt{68} - 3$

$\boxed{v = \pm 2\sqrt{17} - 3}$

3. $a^2 + 14a - 51 = 0$

$(a + 17)(a - 3) = 0$

$\downarrow \qquad \downarrow$

$\boxed{a = -17, \quad a = 3}$

4. $x^2 - 12x + 11 = 0$

$(x - 11)(x - 1) = 0$

$\downarrow \qquad \downarrow$

$\boxed{x = 11, \quad x = 1}$

5. $x^2 + 6x + 8 = 0$

$(x + 2)(x + 4) = 0$

$\downarrow \qquad \downarrow$

$\boxed{x = -2 \quad x = -4}$

6. $n^2 - 2n - 3 = 0$

$n^2 - 2n = 3$

$n^2 - 2n + 1 = 3 + 1$

$(n - 1)(n - 1) = 4$

$\sqrt{(n-1)^2} = \overset{\pm}{\sqrt{4}}$

$n - 1 = \pm 2$

$n = \pm 2 + 1$

$\boxed{n = 3, -1}$

7. $x^2 + 14x - 15 = 0$

$(x + 15)(x - 1) = 0$

$\downarrow \qquad \downarrow$

$\boxed{x = -15 \qquad x = 1}$

8. $k^2 - 12k + 23 = 0$

$k^2 - 12k = -23$

$k^2 - 12k + 36 = -23 + 36$

$(k - 6)(k - 6) = 13$

$\sqrt{(k-6)^2} = \overset{\pm}{\sqrt{13}}$

$k - 6 = \pm\sqrt{13}$

$k = \pm\sqrt{13} + 6$

9. $r^2 - 4r - 91 = 7$

$r^2 - 4r = 7 + 91$

$r^2 - 4r + 4 = 98$

$(r - 2)(r - 2) = 98$

$\sqrt{(r-2)^2} \overset{\pm}{=} \sqrt{98}$

$r - 2 = \pm\sqrt{98}$

$r = \pm\sqrt{98} + 2$

$\boxed{r = \pm 7\sqrt{2} + 2}$

10. $x^2 - 10x + 26 = 8$

$x^2 - 10x = 8 - 26$

$x^2 - 10x + 25 = -16 + 25$

$(x - 5)(x - 5) = 9$

$\sqrt{(x-5)^2} = \pm\sqrt{9}$

$x - 5 = \pm 3$

$x = \pm 3 + 5$

$\boxed{x = 8, 2}$

11. $k^2 - 4k + 1 = -5$

$k^2 - 4k = -5 - 1$

$k^2 - 4k + 4 = -6 + 4$

$(k - 2)(k - 2) = -2$

$\sqrt{(k-2)^2} = \pm\sqrt{-2}$

$k - 2 = \pm\sqrt{-2}$

$k = \pm\sqrt{-2} + 2$ ← imaginary #

$\boxed{\text{No solution}}$

12. $b^2 + 2b = -20$

$b^2 + 2b + 1 = -20 + 1$

$(b + 1)(b + 1) = -19$

$\sqrt{(b+1)^2} = \pm\sqrt{-19}$

$b + 1 = \pm\sqrt{-19}$

$b = \pm\sqrt{-19} - 1$ ← imaginary #

$\boxed{\text{No solution}}$