

- 1 **解答** (1)  $15\sqrt{2} - 9\sqrt{5} - 2\sqrt{10} + 6$  (2)  $4 - \sqrt{6} + 6\sqrt{2} - 3\sqrt{3}$   
 (3)  $1 + \sqrt{3}$  (4)  $18 + 10\sqrt{3}$  (5)  $12 - 2\sqrt{35}$  (6)  $9 + 6\sqrt{2}$   
 (7)  $11 + 4\sqrt{7}$  (8)  $22 - 12\sqrt{2}$  (9) 2 (10) 4 (11) 13  
 (12) 3
- (1)  $(3\sqrt{5} - 2)(\sqrt{10} - 3) = 3\sqrt{5} \times \sqrt{10} - 3\sqrt{5} \times 3 - 2 \times \sqrt{10} + 2 \times 3$   
 $= 15\sqrt{2} - 9\sqrt{5} - 2\sqrt{10} + 6$
- (2)  $(\sqrt{2} + 3)(2\sqrt{2} - \sqrt{3}) = \sqrt{2} \times 2\sqrt{2} - \sqrt{2} \times \sqrt{3} + 3 \times 2\sqrt{2} - 3 \times \sqrt{3}$   
 $= 4 - \sqrt{6} + 6\sqrt{2} - 3\sqrt{3}$
- (3)  $(\sqrt{3} - 1)(\sqrt{3} + 2) = (\sqrt{3})^2 + (-1) \times 2 + \sqrt{3} \times (-1) \times 2$   
 $= 3 + \sqrt{3} - 2 = 1 + \sqrt{3}$
- (4)  $(\sqrt{6} + 2\sqrt{2})(\sqrt{6} + 3\sqrt{2}) = (\sqrt{6})^2 + (2\sqrt{2} + 3\sqrt{2})\sqrt{6} + 2\sqrt{2} \times 3\sqrt{2}$   
 $= 6 + 5\sqrt{2} \times \sqrt{6} + 12$   
 $= 18 + 10\sqrt{3}$
- (5)  $(\sqrt{5} - \sqrt{7})^2 = (\sqrt{5})^2 - 2 \times \sqrt{7} \times \sqrt{5} + (\sqrt{7})^2$   
 $= 5 - 2\sqrt{35} + 7$   
 $= 12 - 2\sqrt{35}$
- (6)  $(\sqrt{3} + \sqrt{6})^2 = (\sqrt{3})^2 + 2 \times \sqrt{6} \times \sqrt{3} + (\sqrt{6})^2$   
 $= 3 + 2\sqrt{18} + 6$   
 $= 9 + 6\sqrt{2}$
- (7)  $(\sqrt{7} + 2)^2 = (\sqrt{7})^2 + 2 \times 2 \times \sqrt{7} + 2^2$   
 $= 7 + 4\sqrt{7} + 4$   
 $= 11 + 4\sqrt{7}$
- (8)  $(3\sqrt{2} - 2)^2 = (3\sqrt{2})^2 - 2 \times 2 \times 3\sqrt{2} + 2^2$   
 $= 18 - 12\sqrt{2} + 4$   
 $= 22 - 12\sqrt{2}$
- (9)  $(\sqrt{5} + \sqrt{3})(\sqrt{5} - \sqrt{3}) = (\sqrt{5})^2 - (\sqrt{3})^2$   
 $= 5 - 3 = 2$
- (10)  $(\sqrt{10} - \sqrt{6})(\sqrt{10} + \sqrt{6}) = (\sqrt{10})^2 - (\sqrt{6})^2$

- $= 10 - 6 = 4$
- (11)  $(4 + \sqrt{3})(4 - \sqrt{3}) = 4^2 - (\sqrt{3})^2$   
 $= 16 - 3 = 13$
- (12)  $(2\sqrt{2} - \sqrt{5})(2\sqrt{2} + \sqrt{5}) = (2\sqrt{2})^2 - (\sqrt{5})^2$   
 $= 8 - 5 = 3$
- 2 **解答** (1)  $3\sqrt{2}$  (2) 0 (3)  $4\sqrt{5}$  (4)  $10\sqrt{2} - 8\sqrt{6}$  (5)  $-\sqrt{15}$   
 (6)  $-4\sqrt{3}$
- (1)  $\sqrt{12} + \sqrt{3}(\sqrt{6} - 2) = 2\sqrt{3} + \sqrt{3} \times \sqrt{6} - \sqrt{3} \times 2$   
 $= 2\sqrt{3} + 3\sqrt{2} - 2\sqrt{3}$   
 $= 3\sqrt{2}$
- (2)  $\sqrt{3}(\sqrt{2} - 2) + \sqrt{6}(\sqrt{2} - 1) = \sqrt{3} \times \sqrt{2} - \sqrt{3} \times 2 + \sqrt{6} \times \sqrt{2} - \sqrt{6} \times 1$   
 $= \sqrt{6} - 2\sqrt{3} + 2\sqrt{3} - \sqrt{6}$   
 $= 0$
- (3)  $\sqrt{5}(2 + \sqrt{10}) - \sqrt{2}(5 - \sqrt{10}) = \sqrt{5} \times 2 + \sqrt{5} \times \sqrt{10} - \sqrt{2} \times 5 + \sqrt{2} \times \sqrt{10}$   
 $= 2\sqrt{5} + 5\sqrt{2} - 5\sqrt{2} + 2\sqrt{5}$   
 $= 4\sqrt{5}$
- (4)  $\sqrt{32} - \sqrt{150} + \sqrt{18}(2 - \sqrt{3}) = \sqrt{32} - \sqrt{150} + \sqrt{18} \times 2 - \sqrt{18} \times \sqrt{3}$   
 $= 4\sqrt{2} - 5\sqrt{6} + 6\sqrt{2} - 3\sqrt{6}$   
 $= 10\sqrt{2} - 8\sqrt{6}$
- (5)  $\sqrt{5}(2\sqrt{3} - 3) - \sqrt{45}(\sqrt{3} - 1) = \sqrt{5} \times 2\sqrt{3} - \sqrt{5} \times 3 - \sqrt{45} \times \sqrt{3} + \sqrt{45} \times 1$   
 $= 2\sqrt{15} - 3\sqrt{5} - 3\sqrt{15} + 3\sqrt{5}$   
 $= -\sqrt{15}$
- (6)  $\sqrt{6}(5\sqrt{2} - \sqrt{18}) - \frac{24}{\sqrt{3}} = \sqrt{6}(5\sqrt{2} - 3\sqrt{2}) - \frac{24 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}}$   
 $= \sqrt{6} \times 2\sqrt{2} - \frac{24\sqrt{3}}{3}$   
 $= 4\sqrt{3} - 8\sqrt{3}$   
 $= -4\sqrt{3}$