

3.1

(3)

$$1) 2a(3a-5b) + 2b(2a-3b) - 6a(a-b) \quad (+1)$$

$$= \cancel{6a^2} - 10ab + 4ab - 6b^2 - \cancel{6a^2} + 6ab = -6b^2$$

3.2 (1)

$$1) (3a+2b)^2 = 9a^2 + 2 \cdot 3a \cdot 2b + 4b^2 \quad (+1)$$

$$= 9a^2 + 6a \cdot 2b + 4b^2$$

$$= 9a^2 + 12ab + 4b^2$$

(23)

$$4) a^2 + 3a + \frac{9}{4} = \left(a + \frac{3}{2}\right)^2 \quad (+1)$$

(36)

$$4) (x^2-4)^2 - (x+2)(x-2)(x^2+4) \quad (+2)$$

$$= (x^4-2)x^2 \cdot (+4) + 4^2$$

$$x^4 - 2x^2 \cdot (+4) + 4^2$$

$$x^4 - 8x^2 + 16 - (x^4 - 16)$$

$$x^4 - 8x^2 + 16 - x^4 + 16 = -8x^2 + 32$$

$$6) (2a+3b)^2 - (3a-2b)^2 = (2a)^2 + 2 \cdot 2a \cdot 3b + 3b^2 - (3a)^2 - (2 \cdot 3a - 2b) + 2b^2 \quad (+2)$$

$$= 4a^2 + 12ab + 3b^2 - 9a^2 + 12ab + 2b^2$$

$$= -5a^2 + 5b^2 + 24ab$$

3.3

$$1) (2a-3)(2a+3) = 2a^2 - 3^2 = 2a^2 - 3^2 = 4a^2 - 9 \quad (+1)$$

$$2) (4a+5)(4a-5) = 4a^2 - 5^2 = 16a^2 - 25 \quad (+1)$$

$$3) 81a^4 - 16 = (9a^2-4)(9a^2+4) \quad (+1)$$

$$= (3a-2)(3a+2) \cdot (9a^2+4)$$



11.

$$1) (a-b)^2 - c^2 = (a-b-c)(a-b+c)$$

+1

14.

$$1) 27a^3 + 8b^3 = (27a^3 + 8b^3) \\ = (3a+2b)(3a^2 + 3a2b + 2b^2)$$

+1

3.4

2.

$$1) 6a^2b^2 - 12a^3b + 18ab^2 = 6ab(ab - 2a + 3b)$$

+0.5

$$2) 7a^3b + 14a^2b^2 - 21a^2b = 7a^2b(a^2 + 2b - 3)$$

+0.5

7.

$$1) (2a-1)(3a+2) + (2a-1)(2a+3) = (2a-1)(3a+2+2a+3) \\ (2a-1)(5a+5) \\ 5(a+1)(2a-1)$$

+1

10.

$$1) 3a^2 + 2a + 4b + 6ab = 3a(a+2b) + 2(a+2b) \\ (a+2b) + (3a+2)$$

+1

3.5

$$1) \frac{a^2-4}{a^2-2a} = \frac{(a-2)(a+2)}{a(a-2)} = \frac{a+2}{a}$$

+1

$$2) \frac{a^2-b^2}{a^3-b^3} = \frac{(a-b)(a+b)}{(a+b)(a^2+ab+b^2)} = \frac{a-b}{a^2+ab+b^2}$$

+1

