

2.2

- 1) $a^2 - 9 = a^2 - 3^2 = (a + 3)(a - 3)$
- 2) $4 - x^2 = 2^2 - x^2 = (2 + x)(2 - x)$
- 3) $a^2 - 1 = a^2 - 1^2 = (a + 1)(a - 1)$
- 4) $b^2 - 4a^2 = b^2 - (2a)^2 = (b + 2a)(b - 2a)$
- 5) $-25a^2 + x^2 = x^2 - 25a^2 = x^2 - (5a)^2 = (x + 5a)(x - 5a)$
- 6) $a^2 + 2a + 1 = a^2 + 2a \cdot 1 + 1^2 = (a + 1)^2$
- 7) $x^2 - 6x + 9 = x^2 - 2x \cdot 3 + 3^2 = (x - 3)^2$
- 8) $9x^2 - 12x + 4 = (3x)^2 - 2 \cdot 3x \cdot 2 + 2^2 = (3x - 2)^2$
- 9) $a^2 + 4ab + 4b^2 = a^2 + 2a \cdot 2b + (2b)^2 = (a + 2b)^2$
- 10) $1 - x^2 = 1^2 - x^2 = (1 + x)(1 - x)$
- 11) $a^2b^2 - m^2 = (ab)^2 - m^2 = (ab + m)(ab - m)$
- 12) $100a^2 - 64b^2 = 4(25a^2 - 16b^2) = 4((5a)^2 - (4b)^2) = 4(5a + 4b)(5a - 4b)$
- 13) $16a^2 - x^2y^2 = (4a)^2 - (xy)^2 = (4a + xy)(4a - xy)$
- 14) $x^4 - y^2 = (x^2)^2 - y^2 = (x^2 + y)(x^2 - y)$
- 15) $x^4 - 6x^2 + 9 = (x^2)^2 - 2x^2 \cdot 3 + 3^2 = (x^2 - 3)^2$
- 16) $1 + 2x^2 + x^4 = 1^2 + 2 \cdot 1 \cdot x^2 + (x^2)^2 = (1 + x^2)^2$
- 17) $4a^2 + 9b^2 - 12ab = 4a^2 - 12ab + 9b^2 =$
 $= (2a)^2 - 2 \cdot 2a \cdot 3b + (3b)^2 = (2a - 3b)^2$
- 18) $4x^2 + 4x^4 + 1 = 4x^4 + 4x^2 + 1 = (2x^2)^2 + 2 \cdot 2x^2 \cdot 1 + 1^2 = (2x^2 + 1)^2$
- 19) $-144 + b^2c^2 = b^2c^2 - 144 = (bc)^2 - 12^2 = (bc + 12)(bc - 12)$
- 20) $4a^4 - 9b^2 = (2a^2)^2 - (3b)^2 = (2a^2 + 3b)(2a^2 - 3b)$
- 21) $9a^2x^4 - 16b^2 = (3ax^2)^2 - (4b)^2 = (3ax^2 + 4b)(3ax^2 - 4b)$
- 22) $a^2 - 9b^2c^4 = a^2 - (3bc^2)^2 = (a + 3bc^2)(a - 3bc^2)$

$$23) \quad 16a^2 - 1 = (4a)^2 - 1^2 = (4a + 1)(4a - 1)$$

$$24) \quad a^4 + 9b^2 - 6a^2b = a^4 - 6a^2b + 9b^2 = (a^2)^2 - 2a^2 \cdot 3b + (3b)^2 = (a^2 - 3b)^2$$

$$25) \quad 9x^4 + 16y^2 + 24x^2y = 9x^4 + 24x^2y + 16y^2 = (3x^2)^2 + 2 \cdot 3x^2 \cdot 4y + (4y)^2 = (3x^2 + 4y)^2$$

$$26) \quad 1 + x^6 - 2x^3 = x^6 - 2x^3 + 1 = (x^3)^2 - 2x^3 \cdot 1 + 1^2 = (x^3 - 1)^2 = (x^3 - 1^3)^2 = \left((x - 1)(x^2 + x + 1)\right)^2 = (x - 1)^2(x^2 + x + 1)^2$$

$$27) \quad 4x^2y^2 - 20xy + 25 = (2xy)^2 - 2 \cdot 2xy \cdot 5 + 5^2 = (2xy - 5)^2$$