

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)$$

▶ 시작

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)$$

▶ 시작

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2$$

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)$$

▶ 시작

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = a^4 - (2b^2 + 2c^2)a^2 + (b^4 - 2b^2c^2 + c^4)$$

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)$$

▶ 시작

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = a^4 - (2b^2 + 2c^2)a^2 + (b^4 - 2b^2c^2 + c^4) \\ = a^4 - (2b^2 + 2c^2)a^2 + (b^2 - c^2)^2$$

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)$$

▶ 시작

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = a^4 - (2b^2 + 2c^2)a^2 + (b^4 - 2b^2c^2 + c^4) \\ = a^4 - (2b^2 + 2c^2)a^2 + (b^2 - c^2)^2 \\ = a^4 - (2b^2 + 2c^2)a^2 + \{(b + c)(b - c)\}^2$$

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)$$

▶ 시작

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = a^4 - (2b^2 + 2c^2)a^2 + (b^4 - 2b^2c^2 + c^4) \\ = a^4 - (2b^2 + 2c^2)a^2 + (b^2 - c^2)^2 \\ = a^4 - (2b^2 + 2c^2)a^2 + \{(b + c)(b - c)\}^2 \\ = a^4 - (2b^2 + 2c^2)a^2 + (b + c)^2(b - c)^2$$

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)$$

▶ 시작

$$\begin{aligned} & a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ &= a^4 - (2b^2 + 2c^2)a^2 + (b^4 - 2b^2c^2 + c^4) \\ &= a^4 - (2b^2 + 2c^2)a^2 + (b^2 - c^2)^2 \\ &= a^4 - (2b^2 + 2c^2)a^2 + \{(b + c)(b - c)\}^2 \\ &= a^4 - (2b^2 + 2c^2)a^2 + (b + c)^2(b - c)^2 \\ &= a^4 - (2b^2 + 2c^2)a^2 + (b^2 + 2bc + c^2)(b^2 - 2bc + c^2) \end{aligned}$$

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ = -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)$$

▶ 시작

$$\begin{aligned} & a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\ &= a^4 - (2b^2 + 2c^2)a^2 + (b^4 - 2b^2c^2 + c^4) \\ &= a^4 - (2b^2 + 2c^2)a^2 + (b^2 - c^2)^2 \\ &= a^4 - (2b^2 + 2c^2)a^2 + \{(b + c)(b - c)\}^2 \\ &= a^4 - (2b^2 + 2c^2)a^2 + (b + c)^2(b - c)^2 \\ &= a^4 - (2b^2 + 2c^2)a^2 + (b^2 + 2bc + c^2)(b^2 - 2bc + c^2) \\ &= \{a^2 - (b^2 + 2bc + c^2)\}\{a^2 - (b^2 - 2bc + c^2)\} \end{aligned}$$

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2$$

$$= -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)$$

▶ 시작

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2$$

$$= a^4 - (2b^2 + 2c^2)a^2 + (b^4 - 2b^2c^2 + c^4)$$

$$= a^4 - (2b^2 + 2c^2)a^2 + (b^2 - c^2)^2$$

$$= a^4 - (2b^2 + 2c^2)a^2 + \{(b + c)(b - c)\}^2$$

$$= a^4 - (2b^2 + 2c^2)a^2 + (b + c)^2(b - c)^2$$

$$= a^4 - (2b^2 + 2c^2)a^2 + (b^2 + 2bc + c^2)(b^2 - 2bc + c^2)$$

$$= \{a^2 - (b^2 + 2bc + c^2)\}\{a^2 - (b^2 - 2bc + c^2)\}$$

$$= \{a^2 - (b + c)^2\}\{a^2 - (b - c)^2\}$$

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2$$

$$= -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)$$

▶ 시작

$$a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2$$

$$= a^4 - (2b^2 + 2c^2)a^2 + (b^4 - 2b^2c^2 + c^4)$$

$$= a^4 - (2b^2 + 2c^2)a^2 + (b^2 - c^2)^2$$

$$= a^4 - (2b^2 + 2c^2)a^2 + \{(b + c)(b - c)\}^2$$

$$= a^4 - (2b^2 + 2c^2)a^2 + (b + c)^2(b - c)^2$$

$$= a^4 - (2b^2 + 2c^2)a^2 + (b^2 + 2bc + c^2)(b^2 - 2bc + c^2)$$

$$= \{a^2 - (b^2 + 2bc + c^2)\}\{a^2 - (b^2 - 2bc + c^2)\}$$

$$= \{a^2 - (b + c)^2\}\{a^2 - (b - c)^2\}$$

$$= \{a + (b + c)\}\{a - (b + c)\}\{a + (b - c)\}\{a - (b - c)\}$$

$$\begin{aligned}
 & a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\
 &= -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)
 \end{aligned}$$

▶ 시작

$$\begin{aligned}
 & a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\
 &= a^4 - (2b^2 + 2c^2)a^2 + (b^4 - 2b^2c^2 + c^4) \\
 &= a^4 - (2b^2 + 2c^2)a^2 + (b^2 - c^2)^2 \\
 &= a^4 - (2b^2 + 2c^2)a^2 + \{(b + c)(b - c)\}^2 \\
 &= a^4 - (2b^2 + 2c^2)a^2 + (b + c)^2(b - c)^2 \\
 &= a^4 - (2b^2 + 2c^2)a^2 + (b^2 + 2bc + c^2)(b^2 - 2bc + c^2) \\
 &= \{a^2 - (b^2 + 2bc + c^2)\}\{a^2 - (b^2 - 2bc + c^2)\} \\
 &= \{a^2 - (b + c)^2\}\{a^2 - (b - c)^2\} \\
 &= \{a + (b + c)\}\{a - (b + c)\}\{a + (b - c)\}\{a - (b - c)\} \\
 &= (a + b + c)(a - b - c)(a + b - c)(a - b + c)
 \end{aligned}$$

$$\begin{aligned}
 & a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\
 &= -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)
 \end{aligned}$$

▶ 처음

$$\begin{aligned}
 & a^4 + b^4 + c^4 - 2a^2b^2 - 2b^2c^2 - 2c^2a^2 \\
 &= a^4 - (2b^2 + 2c^2)a^2 + (b^4 - 2b^2c^2 + c^4) \\
 &= a^4 - (2b^2 + 2c^2)a^2 + (b^2 - c^2)^2 \\
 &= a^4 - (2b^2 + 2c^2)a^2 + \{(b + c)(b - c)\}^2 \\
 &= a^4 - (2b^2 + 2c^2)a^2 + (b + c)^2(b - c)^2 \\
 &= a^4 - (2b^2 + 2c^2)a^2 + (b^2 + 2bc + c^2)(b^2 - 2bc + c^2) \\
 &= \{a^2 - (b^2 + 2bc + c^2)\}\{a^2 - (b^2 - 2bc + c^2)\} \\
 &= \{a^2 - (b + c)^2\}\{a^2 - (b - c)^2\} \\
 &= \{a + (b + c)\}\{a - (b + c)\}\{a + (b - c)\}\{a - (b - c)\} \\
 &= (a + b + c)(a - b - c)(a + b - c)(a - b + c) \\
 &= -(a + b + c)(-a + b + c)(a - b + c)(a + b - c)
 \end{aligned}$$