

Τεστ Παραγοντοποίηση / Β' οριζα

$$1. 16y^3 + 8y^2 = 2 \cdot \underset{\circ}{8} \cdot \underset{mm}{y} \cdot \underset{mm}{y}^2 + \underset{\circ}{8} \underset{mm}{y}^2 \cdot 1 = \underset{\circ}{8} \underset{mm}{y}^2 (2y + 1)$$

$$2. 10w^2 + 20w = 10 \cdot \underset{\circ}{w} \cdot \underset{\circ}{w} + 2 \cdot 10 \cdot \underset{\circ}{w} = 10 \cdot \underset{\circ}{w} (w + 2)$$

$$3. 9a(b-x) - 3(b-x) = \underset{\circ}{3} \cdot \underset{\circ}{3} \cdot \underset{\circ}{a} (b-x) - \underset{\circ}{3} (b-x) = \underset{\circ}{3} (b-x) (3a - 1)$$

$$4. 6x^3y - 9xy^2 + 3x^2y = 2 \cdot \underset{\circ}{3} \cdot \underset{mm}{x} \cdot \underset{mm}{x}^2 \cdot \underset{\circ}{y} - \underset{\circ}{3} \cdot \underset{\circ}{3} \cdot \underset{mm}{x} \cdot \underset{\circ}{y} \cdot \underset{\circ}{y} + \underset{\circ}{3} \cdot \underset{mm}{x} \cdot \underset{mm}{x} \cdot \underset{\circ}{y}$$
$$= \underset{\circ}{3} \underset{mm}{x} \underset{\circ}{y} (2x^2 - 3y + x)$$

$$5. y^2 - 16 = y^2 - 4^2$$
$$= (y - 4)(y + 4)$$

$$6. x^2 + 6x + 9 = x^2 + 2 \cdot x \cdot 3 + 3^2 = (x + 3)^2$$

$$7. 25y^2 - 9w^2 = (5y)^2 - (3w)^2 = (5y - 3w)(5y + 3w)$$

$$8. 4b(y-3) - 8x(3-y) = \underset{\circ}{4} \cdot \underset{\circ}{b} \cdot (y-3) + 2 \cdot \underset{\circ}{4} \cdot \underset{\circ}{x} \cdot (y-3)$$
$$= \underset{\circ}{4} (y-3) (b + 2x)$$

$$9. 4y^2 - 8y - 8y + 28 = (4y^2 - 8y) - (8y - 28)$$
$$= (\underset{\circ}{4} \cdot \underset{mm}{y} \cdot \underset{mm}{y} - 2 \cdot \underset{\circ}{4} \cdot \underset{mm}{y}) - (\underset{\circ}{8} y - 2 \cdot \underset{\circ}{8})$$
$$= \underset{\circ}{4} y (y - 2) - \underset{\circ}{8} (y - 2)$$
$$= \underset{\circ}{4} y (y - 2) - \underset{\circ}{8} (y - 2)$$
$$= (y - 2) (4y - 8)$$

$$10. 2a^2 - 32b^2 = \underset{\circ}{2} \cdot a^2 - \underset{\circ}{2} \cdot 16 \cdot b^2 = \underset{\circ}{2} (a^2 - 16b^2) = 2[a^2 - (4b)^2]$$
$$= 2(a - 4b)(a + 4b)$$

$$\begin{aligned}
 11. \quad 4x^3 + 12x^2 + 9x &= 4x \cdot x^2 + 12x \cdot x + 9 \cdot x \\
 &= x \cdot (4x^2 + 12x + 9) \\
 &= x [(2x)^2 + 2 \cdot (2x) \cdot 3 + 3^2] \\
 &= x (2x+3)^2
 \end{aligned}$$

$$\begin{aligned}
 12. \quad 1 - x^2 + 2xy - y^2 &= 1 - (x^2 - 2xy + y^2) \\
 &= 1 - (x-y)^2 \\
 &= 1^2 - (x-y)^2 \\
 &= [1 - (x-y)] \cdot [1 + (x-y)] \\
 &= (1-x+y)(1+x-y)
 \end{aligned}$$

$$13. \quad 9x^4 - 49y^2 = (3x^2)^2 - (7y)^2 = (3x^2 - 7y)(3x^2 + 7y)$$

$$\begin{aligned}
 14. \quad a x^2 - a y^2 + b x^2 - b y^2 &= a \cdot (x^2 - y^2) + b \cdot (x^2 - y^2) \\
 &= (x^2 - y^2)(a+b) \\
 &= (x-y)(x+y) \cdot (a+b)
 \end{aligned}$$

$$\begin{aligned}
 15. \quad a^2 - 2ab + b^2 - a + b &= (a^2 - 2ab + b^2) - (a - b) \\
 &= (a-b)^2 - (a-b) \\
 &= \underline{(a-b)} \cdot \underline{(a-b)} - \underline{(a-b)} \cdot \underline{1} \\
 &= \underline{(a-b)} \cdot [(a-b) - 1] \\
 &= (a-b) \cdot (a-b-1)
 \end{aligned}$$