

多項式の計算NO16 乗法公式を使って工夫する計算

Aコース

$$\begin{aligned}
 & 99^2 \\
 & \downarrow \\
 & = \frac{(100-1)^2}{99} \quad \left. \begin{array}{l} \text{乗法公式2,3の形に} \\ (\bigcirc \pm \square)^2 \end{array} \right\} \\
 & = 100^2 + 100 \times (-1) \times 2 + (-1)^2 \\
 & = 10000 - 200 + 1 \\
 & = 9801
 \end{aligned}$$

$$\begin{aligned}
 & 101^2 \\
 & \downarrow \\
 & = (100+1)^2 \\
 & \downarrow \\
 & 48^2 \\
 & \downarrow \\
 & = (50-2)^2 \\
 & \downarrow \\
 & 63^2 \\
 & \downarrow \\
 & = (60+3)^2
 \end{aligned}$$

Bコース

$$\begin{aligned}
 & 47 \times 53 \\
 & \begin{array}{cc} 50-3 & 50+3 \end{array} \\
 & \downarrow \\
 & = (50-3)(50+3) \quad \left. \begin{array}{l} \text{同じ数のたし算ひき算に} \\ (\bigcirc + \square)(\bigcirc - \square) \\ \downarrow \\ \bigcirc^2 - \square^2 \\ \text{乗法公式4で展開} \end{array} \right\} \\
 & = 50^2 - 3^2 \\
 & = 2500 - 9 \\
 & = 2491
 \end{aligned}$$

$$\begin{aligned}
 & 4.03 \times 3.97 \\
 & \begin{array}{cc} 4+0.03 & 4-0.03 \end{array} \\
 & \downarrow \\
 & = (4+0.03)(4-0.03) \\
 & \downarrow \\
 & = 4^2 - 0.03^2 \\
 & = 16 - 0.0009 \\
 & = 15.9991
 \end{aligned}$$

Cコース

$$\begin{aligned}
 & 35^2 - 15^2 \\
 & \downarrow \\
 & = (35+15)(35-15) \quad \left. \begin{array}{l} \text{乗法公式4で因数分解} \\ \bigcirc^2 - \square^2 \\ \downarrow \\ (\bigcirc + \square)(\bigcirc - \square) \end{array} \right\} \\
 & = 50 \times 20 \\
 & = 1000
 \end{aligned}$$