

■ 次の式を計算しなさい。

① $(-10xy + 35y^2 + 5yz) \div (-5y)$

② $-7x(7x + 8y - 5z)$

■ 次の式を展開しなさい。

③ $(a+4)(a-4)$

④ $(4x+7)(7y-3)$

⑤ $(x+20)^2$

⑥ $(2b+1)(5b+3)$

⑦ $(s-2)(s-6)$

■ 次の式を因数分解しなさい。

⑧ $m^2 + 9m + 18$

⑨ $y^2 - 4y + 4$

⑩ $121a^2 - b^2$

⑪ $2a^2 + 6a - 80$

■ 次の式を展開しなさい。

⑫ $(2a+2b+1)(3a-1)$

⑬ $(x-y-z)^2$

⑭ $(x+y-9)(x+y+9)$

■ 次の値を、因数分解や式の展開の考え方をういて求めなさい。

⑮ 49×51

⑯ 61^2

⑰ $53^2 - 27^2$

■ 次の式を計算しなさい。

$$\begin{aligned} \textcircled{1} \quad & (-10xy + 35y^2 + 5yz) \div (-5y) \\ & = 2x - 7y - z \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad & -7x(7x + 8y - 5z) \\ & = -49x^2 - 56xy + 35xz \end{aligned}$$

■ 次の式を展開しなさい。

$$\begin{aligned} \textcircled{3} \quad & (a+4)(a-4) \\ & = a^2 - 16 \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad & (4x+7)(7y-3) \\ & = 28xy - 12x + 49y - 21 \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad & (x+20)^2 \\ & = x^2 + 40x + 400 \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & (2b+1)(5b+3) \\ & = 10b^2 + 11b + 3 \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad & (s-2)(s-6) \\ & = s^2 - 8s + 12 \end{aligned}$$

■ 次の式を因数分解しなさい。

$$\begin{aligned} \textcircled{8} \quad & m^2 + 9m + 18 \\ & = (m+6)(m+3) \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad & y^2 - 4y + 4 \\ & = (y-2)^2 \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad & 121a^2 - b^2 \\ & = (11a+b)(11a-b) \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad & 2a^2 + 6a - 80 \\ & = 2(a^2 + 3a - 40) \\ & = 2(a-5)(a+8) \end{aligned}$$

■ 次の式を展開しなさい。

$$\begin{aligned} \textcircled{12} \quad & (2a+2b+1)(3a-1) \\ & = 6a^2 + 6ab + a - 2b - 1 \end{aligned}$$

$$\begin{aligned} \textcircled{13} \quad & (x-y-z)^2 \\ & \quad x-y = A \text{ とおくと} \\ & \quad (A-z)^2 \\ & = A^2 - 2zA + z^2 \\ & = (x-y)^2 - 2z(x-y) + z^2 \\ & = x^2 - 2xy + y^2 - 2xz + 2yz + z^2 \end{aligned}$$

$$\begin{aligned} \textcircled{14} \quad & (x+y-9)(x+y+9) \\ & \quad x+y = A \text{ とおくと} \\ & \quad (A-9)(A+9) \\ & = A^2 - 81 \\ & = (x+y)^2 - 81 \\ & = x^2 + 2xy + y^2 - 81 \end{aligned}$$

■ 次の値を、因数分解や式の展開の考え方をを用いて求めなさい。

$$\begin{aligned} \textcircled{15} \quad & 49 \times 51 \\ & = (50-1) \times (50+1) \\ & = 50^2 - 1^2 \\ & = 2500 - 1 \\ & = 2499 \end{aligned}$$

$$\begin{aligned} \textcircled{16} \quad & 61^2 \\ & = (60+1)^2 \\ & = 3600 + 120 + 1 \\ & = 3721 \end{aligned}$$

$$\begin{aligned} \textcircled{17} \quad & 53^2 - 27^2 \\ & = (53+27) \times (53-27) \\ & = 80 \times 26 \\ & = 2080 \end{aligned}$$