

# Decomposition



1.  $20w^2 - 17w + 3$
2.  $6x^2 - 11xy - 10y^2$
3.  $3x^2 + 3x - 6$
4.  $x^2 + 10x + 16$
5.  $x^2 - 20xy + 36$

①.

$$20w^2 - 17w + 3$$

$$\underline{20w^2 - 5w - 12w + 3}$$

$$5w(4w - 1) - 3(4w - 1)$$

$$(4w - 1)(5w - 3)$$

$$(-4w + 1)(-5w + 3)$$

$$1 \times 60 = 60$$

$$2 \times 30 = 60$$

$$3 \times 20 = 60$$

$$4 \times 15 = 60$$

$$5 \times 12 = 60$$

②.

$$6x^2 - 11xy - 10y^2$$

$$\underline{6x^2 - 15xy + 4xy - 10y^2}$$

$$3x(2x - 5y) + 2y(2x - 5y)$$

$$(2x - 5y)(3x + 2y)$$

$$\underline{-15} + \underline{4} = -11 \leftarrow \text{Big}$$

$$\underline{-15} \times \underline{4} = -60$$

Diff

③.

$$3x^2 + 3x - 6$$

$$\underline{3x^2 - 3x} + \underline{6x - 6}$$

$$3x(x-1) + 6(x-1)$$

$$(x-1)(3x+6)$$

$$(x-1)3(x+2)$$

$$3(x-1)(x+2)$$

$$\begin{aligned} \underline{6} + \underline{-3} &= +3 \leftarrow \text{Brig } (+) \\ \underline{6} \times \underline{-3} &= -18 \\ &\quad \uparrow \\ &\quad \text{Diff} \end{aligned}$$

$$\begin{aligned} 1 \times 18 \\ 2 \times 9 \\ 3 \times 6 \end{aligned}$$

$$4. \quad | \quad x^2 + 10x + 16$$

$$\begin{array}{l} \swarrow \searrow \\ x^2 + 2x \oplus 8x + 16 \\ \downarrow \\ \textcircled{x}(x+2) \oplus \textcircled{8}(x+2) \\ = (x+8)(x+2) \end{array} \quad \begin{array}{l} 2 + 8 = 10 \rightarrow \text{Both } \oplus \\ 2 \times 8 = 16 \\ \uparrow \\ \text{Same} \end{array}$$

$$\begin{array}{l} 1 \times 16 = 16 \\ 2 \times 8 = 16 \end{array}$$

$$5. \quad |x^2 - 20xy + 36y^2$$

$$\begin{aligned} & x^2 - 2xy \oplus 18xy + 36y^2 \quad \begin{array}{l} -2 + -18 = -20 \\ -2 * -18 = 36 \end{array} \quad \begin{array}{l} \swarrow \text{Both} \\ \oplus \end{array} \\ & x(x-2y) - 18y(x-2y) \\ & (x-18y)(x-2y) \end{aligned}$$

Pg. 166 & 167

#11 a-e

#15 a,b

#21

#20 a-e