

## Warm-up

Find the mistake & correct it.

①  $x^2 + 9x - 10$       ②  $y^2 - 3y + 2$       ③  $a^2 + 7a - 18$

$\begin{matrix} 1 \cdot -10 \\ -1 \cdot 10 \end{matrix}$        $\begin{matrix} 1 \cdot 2 \\ -1 \cdot -2 \end{matrix}$        $\begin{matrix} 2 \cdot -9 \\ -2 \cdot 9 \end{matrix}$

$(x-1)(x+10)$        $(y-1)(y-2)$        $(a+9)(a-2)$

$\begin{matrix} +1x \\ -10x \\ \hline -9x \end{matrix}$

③

$$\underline{x^2 + 4x + 3}$$

$$x \cdot x \quad \textcircled{1 \cdot 3} \quad \{-1, -3\}$$

$$(x+1)(x+3)$$

⑤

$$\underline{b^2 - 17b + 72}$$

$$b \cdot b$$

|    |    |   |     |     |
|----|----|---|-----|-----|
| 1. | 72 | } | -1. | -72 |
| 2. | 36 |   | -2. | -36 |
| 3. | 24 |   | -3. | -24 |
| 4. | 18 |   | -4. | -18 |
| 6. | 12 |   | -6. | -12 |
| 8. | 9  |   | -8. | -9  |

$$(b-8)(b-9)$$

⑦

$$\underline{z^2 + 0z - 48}$$

$$z \cdot z$$

|    |     |   |     |     |
|----|-----|---|-----|-----|
| 1. | -48 | } | -1. | -48 |
| 2. | -24 |   | -2. | -24 |
| 3. | -16 |   | -3. | -16 |
| 4. | -12 |   | -4. | -12 |
| 6. | -8  |   | -6. | -8  |

$$(z-4)(z+8)$$

②③

$$a^2 + 5a = 50$$

$$\quad \quad -50 \quad -50$$

$$a^2 + 5a - 50 = 0$$

# 9.6 Factoring $ax^2+bx+c$

\* one more factoring #

For  $x^2+6x+8$ , factor  $x^2 \in 8$

For  $2x^2-7x+3$ , factor  $2x^2 \in 3$

$1x \cdot 2x$   ~~$1x \cdot 3$~~

\* Humm...how to get  $-7x$ ?

-3 here + \* 2x

\* Look at  $1x \cdot \underline{\quad} \leftarrow -1?$

$2x \cdot \underline{\quad} \leftarrow -3?$

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

*(Note: Red arrows show  $1x \cdot -1 = -1x$  and  $-3 \cdot 2x = -6x$ , which sum to  $-7x$ )*

What # •  $2x$  is close to  $-7x$   
 $2x \cdot -3 = -6x, 1x \cdot -1 = -1x$   
 $= -7x$

You try

①  $3x^2+8x+4$

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

$1x \cdot 2 = 2x$   
 $3x \cdot 2 = 6x$   
 $2x + 6x = 8x$

②  $2h^2+13h-7$

$(1h+7)(2h-1)$

$1h \cdot -1 = -1h$   
 $2h \cdot 7 = 14h$

③  $4m^2-9m+5$

$(1m-1)(4m-5)$

$1m \cdot -5 = -5m$   
 $4m \cdot -1 = -4m$   
 $-5m + -4m = -9m$

Homework

Factor

①  $4a^2+9a+5$

②  $5w^2-6w+1$

③  $6x^2-x-5$

④  $3n^2-17n+10$

9Jd:

$$\textcircled{5} 3w^2 + 22w + 7$$

$$\textcircled{6} 8t^2 - 2t - 3$$

$$\textcircled{7} 6m^2 - 5m - 14$$

$$\textcircled{8} 2x^2 + 3x - 35$$