

56 小問集合.

(1) 因数分解せよ.

(a)  $x^2 + 3xy - 2x + 2y^2 - y - 3$

(b)  $(x^2 + 5x)^2 + 10(x^2 + 5x) + 24$

$$\begin{aligned} (a) \quad & x^2 + (3y-2)x + 2y^2 - y - 3 \\ &= x^2 + (3y-2)x + (2y-3)(y+1) \\ &= (x + (2y-1))(x + (y+1)) \\ &= \underline{(x + 2y - 1)(x + y + 1)} \quad \# \end{aligned}$$

$$\begin{aligned} (b) \quad & x^2 + 5x = M + 24 \\ & M^2 + 10M + 24 \\ &= (M+6)(M+4) \\ &= (x^2 + 5x + 6)(x^2 + 5x + 4) \\ &= \underline{(x+3)(x+2)(x+1)(x+4)} \quad \# \end{aligned}$$

(2) 展開せよ.

(a)  $(x+y)^2(x-y)^2$

(b)  $(x+y-1)(x+2y-1)$

$$\begin{aligned} (a) \quad & ((x+y)(x-y))^2 \\ &= (x^2 - y^2)^2 \\ &= \underline{x^4 - 2x^2y^2 + y^4} \quad \# \end{aligned}$$

$$\begin{aligned} (b) \quad & x-1 = M + 24 \\ & (M+y)(M+2y) \\ &= M^2 + 3yM + 2y^2 \\ &= (x-1)^2 + 3y(x-1) + 2y^2 \\ &= \underline{x^2 - 2x + 1 + 3xy - 3y + 2y^2} \quad \# \end{aligned}$$

(3) 以下の方程式, 不等式を解け.

(a)  $|x+2| = 3$

(b)  $|2x-3| < 5$

$$\begin{aligned} (a) \quad & |x+2| = 3 \\ & x+2 = \pm 3 \\ & x = -2 \pm 3 \\ &= \underline{1, -5} \quad \# \end{aligned}$$

$$\begin{aligned} (b) \quad & |2x-3| < 5 \\ & -5 < 2x-3 < 5 \\ & -2 < 2x < 8 \\ & \underline{-1 < x < 4} \quad \# \end{aligned}$$

$$\begin{aligned} & |0| < 5 \\ & -5 < 0 < 5 \end{aligned}$$