多項式の計算③　解答と解説

1 解答　(1)　$6x-5y$　(2)　$8a-2b$　(3)　$-a+b$　(4)　$-6x-3y$

(1)
$$\begin{aligned}(3x+y)+3(x-2y)&=3x+y+3x-6y\\&=3x+3x+y-6y\\&=6x-5y\end{aligned}$$

(2)
$$\begin{aligned}4(a-2b)+2(2a+3b)&=4a-8b+4a+6b\\&=4a+4a-8b+6b\\&=8a-2b\end{aligned}$$

(3)
$$\begin{aligned}4(2a+b)-3(3a+b)&=8a+4b-9a-3b\\&=8a-9a+4b-3b\\&=-a+b\end{aligned}$$

(4)
$$\begin{aligned}6(x-2y)-3(4x-3y)&=6x-12y-12x+9y\\&=6x-12x-12y+9y\\&=-6x-3y\end{aligned}$$

2 解答　(1)　$\dfrac{3x+2y}{4}$　(2)　$\dfrac{7}{6}b$　(3)　$\dfrac{5x-5y}{6}$

(1)
$$\begin{aligned}\frac{x-4y}{4}+\frac{x+3y}{2}&=\frac{x-4y}{4}+\frac{2(x+3y)}{4}\\&=\frac{(x-4y)+2(x+3y)}{4}\\&=\frac{x-4y+2x+6y}{4}\\&=\frac{3x+2y}{4}\end{aligned}$$

(2)
$$\begin{aligned}\frac{a+2b}{3}-\frac{2a-3b}{6}&=\frac{2(a+2b)}{6}-\frac{2a-3b}{6}\\&=\frac{2(a+2b)-(2a-3b)}{6}\\&=\frac{2a+4b-2a+3b}{6}\\&=\frac{7}{6}b\end{aligned}$$

(3)
$$\begin{aligned}\frac{x-3y}{2}+\frac{x+2y}{3}&=\frac{3(x-3y)}{6}+\frac{2(x+2y)}{6}\\&=\frac{3(x-3y)+2(x+2y)}{6}\\&=\frac{3x-9y+2x+4y}{6}\\&=\frac{5x-5y}{6}\end{aligned}$$

3 解答　(1)　$-7x+y$　(2)　$\dfrac{7x+7y}{6}$

(1)
$$\begin{aligned}3(x+2y)-5(2x+y)&=3x+6y-10x-5y\\&=3x-10x+6y-5y\\&=-7x+y\end{aligned}$$

(2)
$$\begin{aligned}\frac{x+3y}{2}+\frac{2x-y}{3}&=\frac{3(x+3y)}{6}+\frac{2(2x-y)}{6}\\&=\frac{3(x+3y)+2(2x-y)}{6}\\&=\frac{3x+9y+4x-2y}{6}\\&=\frac{7x+7y}{6}\end{aligned}$$