

式の計算 [いろいろな多項式の計算]

<演習問題>

次の計算をせよ。

(1) $2(a + 3b) + (4a + 5b)$

(11) $\frac{a-b}{3} + \frac{2a-b}{5}$

(2) $(a - b) + 2(-4a + b)$

(12) $\frac{3a-3b}{4} - \frac{a-2b}{3}$

(3) $(5a - 2b) - 2(2a + 3b)$

(13) $\frac{a-7b}{4} + \frac{a-5b}{6}$

(4) $2(5a - b) - (5a - 9b)$

(14) $-\frac{a-7b}{5} + \frac{a-4b}{2}$

(5) $(-4a + 4b) + 2(2a + 4b)$

(6) $-3(a + b) - 2(3a + 2b)$

(15) $\frac{a-7b}{2} - \frac{a-3b}{8}$

(7) $(2a + 6b) - 4(a + 3b)$

(16) $\frac{a+2b}{3} - \frac{a-5b}{9}$

(8) $(10a + 2b) - 10(a + 2b)$

(17) $\frac{3a-2b}{8} - \frac{a-5b}{3}$

(9) $2(2a - b) - (3a - 2b)$

(10) $\frac{3a+b}{2} + \frac{2a+b}{3}$

(18) $\frac{2a-4b}{3} - \frac{4a-2b}{7}$

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次の計算をせよ。

(1) $2(a + 3b) + (4a + 5b)$

$$\begin{aligned} 2(a + 3b) + (4a + 5b) &= 2a + 6b + 4a + 5b \\ &= 6a + 11b \end{aligned}$$

(2) $(a - b) + 2(-4a + b)$

$$\begin{aligned} (a - b) + 2(-4a + b) &= a - b - 8a + 2b \\ &= -7a + b \end{aligned}$$

(3) $(5a - 2b) - 2(2a + 3b)$

$$\begin{aligned} (5a - 2b) - 2(2a + 3b) &= 5a - 2b - 4a - 6b \\ &= a - 8b \end{aligned}$$

(4) $2(5a - b) - (5a - 9b)$

$$\begin{aligned} 2(5a - b) - (5a - 9b) &= 10a - 2b - 5a + 9b \\ &= 5a + 7b \end{aligned}$$

(5) $(-4a + 4b) + 2(2a + 4b)$

$$\begin{aligned} (-4a + 4b) + 2(2a + 4b) &= -4a + 4b + 4a + 8b \\ &= 12b \end{aligned}$$

(6) $-3(a + b) - 2(3a + 2b)$

$$\begin{aligned} -3(a + b) - 2(3a + 2b) &= -3a - 3b - 6a - 4b \\ &= -9a - 7b \end{aligned}$$

(7) $(2a + 6b) - 4(a + 3b)$

$$\begin{aligned} (2a + 6b) - 4(a + 3b) &= 2a + 6b - 4a - 12b \\ &= -2a - 6b \end{aligned}$$

(8) $(10a + 2b) - 10(a + 2b)$

$$\begin{aligned} (10a + 2b) - 10(a + 2b) &= 10a + 2b - 10a - 20b \\ &= -18b \end{aligned}$$

(9) $2(2a - b) - (3a - 2b)$

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

(10) $\frac{3a+b}{2} + \frac{2a+b}{3}$

$$\begin{aligned} \frac{3a+b}{2} + \frac{2a+b}{3} &= \frac{9a+3b+4a+2b}{6} \\ &= \frac{13a+5b}{6} \end{aligned}$$

(11) $\frac{a-b}{3} + \frac{2a-b}{5}$

$$\begin{aligned} \frac{a-b}{3} + \frac{2a-b}{5} &= \frac{5a-5b+6a-3b}{15} \\ &= \frac{11a-8b}{15} \end{aligned}$$

(12) $\frac{3a-3b}{4} - \frac{a-2b}{3}$

$$\begin{aligned} \frac{3a-3b}{4} - \frac{a-2b}{3} &= \frac{9a-9b-4a+8b}{12} \\ &= \frac{5a-b}{12} \end{aligned}$$

(13) $\frac{a-7b}{4} + \frac{a-5b}{6}$

$$\begin{aligned} \frac{a-7b}{4} + \frac{a-5b}{6} &= \frac{3a-21b+2a-10b}{12} \\ &= \frac{5a-31b}{12} \end{aligned}$$

(14) $-\frac{a-7b}{5} + \frac{a-4b}{2}$

$$\begin{aligned} -\frac{a-7b}{5} + \frac{a-4b}{2} &= \frac{-2a+14b+5a-20b}{10} \\ &= \frac{3a-6b}{10} \end{aligned}$$

(15) $\frac{a-7b}{2} - \frac{a-3b}{8}$

$$\begin{aligned} \frac{a-7b}{2} - \frac{a-3b}{8} &= \frac{4a-28b-a+3b}{8} \\ &= \frac{3a-25b}{8} \end{aligned}$$

(16) $\frac{a+2b}{3} - \frac{a-5b}{9}$

$$\begin{aligned} \frac{a+2b}{3} - \frac{a-5b}{9} &= \frac{3a+6b-a+5b}{9} \\ &= \frac{2a+11b}{9} \end{aligned}$$

(17) $\frac{3a-2b}{8} - \frac{a-5b}{3}$

$$\begin{aligned} \frac{3a-2b}{8} - \frac{a-5b}{3} &= \frac{9a-6b-8a+40b}{24} \\ &= \frac{a+34b}{24} \end{aligned}$$

(18) $\frac{2a-4b}{3} - \frac{4a-2b}{7}$

$$\begin{aligned} \frac{2a-4b}{3} - \frac{4a-2b}{7} &= \frac{14a-28b-12a+6b}{21} \\ &= \frac{2a-22b}{21} \end{aligned}$$