

F1 Mathematics – Manipulations of Polynomials worksheet 4

Date : 24-10-2024

Addition and subtraction of polynomials are performed by combining the like terms after removing brackets.

The steps are as follows.

1. Remove all brackets.
2. Group the like terms.
3. Combine the like terms.

Simplify each of the following expressions.

1. (a) $(x - 8) + (x - 7)$

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

2. (a) $(x + 6y) - (y + 5x)$

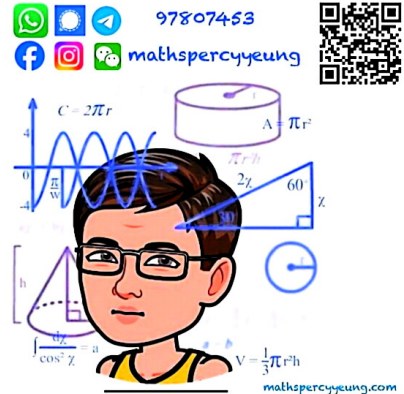
(b) $(2x - 5y) + (y - 5x)$

3. (a) $(1 - 2x^2) + (-3x^2 + x + 15)$

(b) $(3x^3 - 2x - 9) - (16 - 3x^3)$

4. (a) $y^2 - 6y + 4 - (3 - 3y^2)$

(b) $(-3y^2 + 2) + (7y^2 - 3y)$



5. (a) Add $x - 7y$ to $x - 4y$.

(b) Subtract $2x - 7y$ from $3x - 15y$.

6. (a) Add $2x^2 - 5x$ to $9x - 4x^2$.

(b) Subtract $-3x^2 - 5x^3$ from $-x^3 + 16x^2$.

7. a) $4(x + 6y)$

b) $-5x(x + 6y + 2)$

8. a) $2(-2x - 9) - 3(1 - 3x)$

b) $x^3 x^2$

F1 Mathematics – Manipulations of Polynomials worksheet 5

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Multiplication of polynomials can be performed by applying the distributive law of multiplication:

$$k(x + y) = kx + ky \quad \text{or} \quad (x + y)k = xk + yk$$

Expand each of the following expressions. (1 – 10)

1. (a) $7(x + 5)$

(b) $-3(x + 4)$

2. (a) $4(x - y)$

(b) $-9(x - y)$

3. (a) $7x(x + 5)$

(b) $-3x(x + 4)$

4. (a) $-4y(6 - y)$

(b) $-9y(6 - y)$

5. (a) $5x(x - y)$

(b) $-7x(x^2 - y)$

6. (a) $(x + y)(4y)$

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

DemonstrationExpand $7(x + 9)$.Solution

$$\begin{aligned} &7(x + 9) \\ &= 7(x) + 7(9) \\ &= \underline{7x + 63} \end{aligned}$$

7. (a) $(x^3 - 4y)(5x)$

(b) $(2x + y)(-6x)$

8. (a) $(x^2 - 2x - 5)(7x)$

b) $(2x^2 - 9x)(3x) - (3x^2 - y)$

9. 9.(a) $(x + 6)x + 9(x + 6)$

(b) $(y - 7)(y) - 2(y - 7)$

10 把 $6m$ 個杯形蛋糕分給 8 個人，每人可得 $(m - 3)$ 個杯形蛋糕。求 m 的值。