

Foundation GCSE: Collecting Like Terms

Name: _____

Class: _____

Instructions: Answer all questions. Questions are ordered from easiest (1) to hardest (20). Working out should be shown where appropriate.

1. Simplify $3x + 4x$.
2. Simplify $5y - 2y$.
3. Simplify $2a + 3a + a$.
4. Simplify $7x - 3x + 2x$.
5. Simplify $4p + 3q + 2p + q$.
6. Simplify $8a - 5b + 3a + 2b$.
7. Simplify $6x^2 + 3x^2$.
8. Simplify $9x - 4y - 3x + 5y$.
9. Simplify $5a^2 + 2a - 3a^2 + 4a$.
10. Simplify $3xy + 2xy - 4xy$.
11. Simplify $10m - 3n - 4m + 7n - 2m$.
12. Simplify $4x^2 + 7x - 2 - x^2 + 3x + 5$.
13. Simplify $2ab + 5a^2b - ab + 3a^2b$.
14. Simplify $8p^2 - 3pq + 2q^2 - 5p^2 + pq - q^2$.
15. Simplify $\frac{1}{2}x + \frac{3}{4}x$.
16. Simplify $4(2x + 3) + 3(x - 1)$ by expanding and collecting like terms.
17. Simplify $5x^3 - 2x^2 + 4x - (3x^3 + x^2 - 2x)$.
18. Simplify $7xy^2 - 3x^2y + 2xy^2 + 4x^2y - xy^2$.
19. Simplify $3x(x - 2) + 2x(3x + 4)$.
20. Simplify $a^2b + 2ab^2 - 3(a^2b - ab^2) + 4a^2b$.

Answers & Worked Solutions

1. $7x$
 $3 + 4 = 7$, so $7x$.
2. $3y$
 $5 - 2 = 3$, so $3y$.
3. $6a$
 $2 + 3 + 1 = 6$, so $6a$.
4. $6x$
 $7 - 3 + 2 = 6$, so $6x$.
5. $6p + 4q$
 $4p + 2p = 6p$; $3q + q = 4q$.
6. $11a - 3b$
 $8a + 3a = 11a$; $-5b + 2b = -3b$.
7. $9x^2$
 $6 + 3 = 9$, so $9x^2$.
8. $6x + y$
 $9x - 3x = 6x$; $-4y + 5y = y$.
9. $2a^2 + 6a$
 $5a^2 - 3a^2 = 2a^2$; $2a + 4a = 6a$.
10. xy
 $3xy + 2xy - 4xy = 1xy = xy$.
11. $4m + 4n$
 $10m - 4m - 2m = 4m$; $-3n + 7n = 4n$.
12. $3x^2 + 10x + 3$
 $4x^2 - x^2 = 3x^2$; $7x + 3x = 10x$; $-2 + 5 = 3$.
13. $ab + 8a^2b$
 $2ab - ab = ab$; $5a^2b + 3a^2b = 8a^2b$.
14. $3p^2 - 2pq + q^2$
 $8p^2 - 5p^2 = 3p^2$; $-3pq + pq = -2pq$; $2q^2 - q^2 = q^2$.
15. $\frac{5}{4}x$ (or $1\frac{1}{4}x$)
 $\frac{2}{4}x + \frac{3}{4}x = \frac{5}{4}x$.
16. $11x + 9$
 $8x + 12 + 3x - 3 = 11x + 9$.
17. $2x^3 - 3x^2 + 6x$
 $5x^3 - 3x^3 = 2x^3$; $-2x^2 - x^2 = -3x^2$; $4x - (-2x) = 6x$.
18. $8xy^2 + x^2y$
 $7xy^2 + 2xy^2 - xy^2 = 8xy^2$; $-3x^2y + 4x^2y = x^2y$.
19. $9x^2 + 2x$
 $3x^2 - 6x + 6x^2 + 8x = 9x^2 + 2x$.
20. $2a^2b + 5ab^2$
 $a^2b + 2ab^2 - 3a^2b + 3ab^2 + 4a^2b = 2a^2b + 5ab^2$.