

FOUNDATION ALGEBRA RECAP



1.

Simplify:

(a) $x + x$

(b) $y \times y$

(c) $a + a + a + a$

(d) $b \times b \times b$

(e) $c + c + c + c + c$

(f) $d \times e$

(g) $4 \times f \times g$

(h) $5 \times h \times h$

(i) $7 \times y \times z$

2.

Simplify:

(a) $x + y + x + y$

(b) $2a + b + 2a + b$

(c) $3c + 4d + c + 3d$

(d) $4m - n + 2m - n$

(e) $5p - 3q + p + 2q$

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

(g) $7a + b - 3a - 2b$

(h) $-2x + 3y + x - y$

(i) $x^2 + x^2$

3.

Simplify:

(a) $x^3 \times x^3$

(b) $x^4 \times x^6$

(c) $x^6 \times x$

(d) $x^{10} \div x^8$

(e) $x^{12} \div x^6$

(f) $x^8 \div x$

(g) $x^{10} \times x^4$

(h) $x^{15} \div x^7$

4.

Simplify:

(a) $3a \times 3a$

(b) $4b \times 5b$

(c) $6c^2 \times 3c^2$

(d) $5d^5 \times 4d^4$

(e) $8e^3 \times 4e$

(f) $7x^5 \times 5x^6$

(g) $6y^7 \times 7y^6$

5.

Expand:

(a) $2(4x + 3)$

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

(c) $4(4x + 5)$

(d) $x(x - 7)$

(e) $x(x + 10)$

(f) $2x(5x - 6)$

(g) $5x(4x + 3)$

(h) $8(3x + 4)$

(i) $x(x - 11)$

(j) $3x(6x - 7)$

6.

Simplify:

(a) $20x^6 \div 5x^2$

(b) $18x^{10} \div 6x^7$

(c) $16x^{11} \div 4x^4$

(d) $24x^8 \div 8x$

(e) $\frac{32x^9}{4x^7}$

(f) $\frac{42x^{11}}{6x^8}$

(g) $\frac{36x^7}{9x}$

(h) $\frac{48x^{16}}{12x^{10}}$

7.

Factorise:

(a) $10x + 12$

(b) $9x - 12$

(c) $30x + 35$

(d) $x^2 + 4x$

(e) $x^2 + 11x$

(f) $2x^2 + 3x$

(g) $6x^2 - 10x$

(h) $12x^2 + 30x$

(i) $24x^2 - 9x$

(j) $20x + 28$

8.

Solve $2x + 11 = 23$

9.

Solve $3x - 10 = 14$

10.

Solve $5x + 13 = 48$

11.

Solve $6x - 7 = 29$

12.

Solve $7x + 6 = 5x + 18$

13.

Solve $8x + 3 = 4x + 35$

14.

Solve $9x - 10 = 6x + 5$

15.

Expand and simplify:

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

(b) $(x + 4)(x + 5)$

(c) $(x - 3)(x + 6)$

(d) $(x - 5)(x + 2)$

(e) $(2x + 1)(x + 4)$

16.

Factorise:

(a) $x^2 + 7x + 6$

(b) $x^2 + 8x + 12$

(c) $x^2 + 10x + 16$

(d) $x^2 + 9x + 20$

(e) $x^2 - 2x - 8$

(f) $x^2 + 3x - 10$

(g) $x^2 - x - 12$

(h) $x^2 + 10x + 24$

(i) $x^2 - 7x - 18$

17.

Solve $3(x + 6) = 33$

18.

Solve $5(2x - 5) = 35$

19.

Expand and simplify:

(a) $4(2x + 3)$

(b) $x(x - 14)$

(c) $3x(5x - 6)$

(d) $(x + 5)(x - 4)$

(e) $5x(5x + 9)$

(f) $(x + 2)(x - 6)$

(g) $(3x - 1)(x + 3)$

(h) $8(3x + 5)$

(i) $(2x + 3)(x - 5)$

(j) $(x - 4)(x - 1)$

(k) $5x(10 - 3x)$

(l) $(2x + 3)(2x + 5)$

(m) $(4x - 1)(x - 4)$

20.

Factorise:

(a) $10x + 16$

(b) $x^2 + 10x$

(c) $x^2 + 13x + 12$

(d) $12x^2 - 18x$

(e) $x^2 + x - 20$

(f) $15x + 35$

(g) $x^2 + 11x + 24$

(h) $x^2 + 5x - 14$

(i) $20x^2 - 28x$

(j) $30x + 50$

(k) $x^2 + 7x - 30$

(l) $x^2 + 12x$

(m) $x^2 - 8x + 16$

21.

Expand and simplify:

(a) $2(3x + 4) + 5(2x + 5)$

(b) $6(x + 3) + 3(5x - 1)$

(c) $2x(4x + 3) + x(x - 10)$

(d) $3x(x + 5) - 4(2x + 3)$

(e) $3x(2x + 7) - x(3x - 2)$

22.

(a) Solve $\frac{x}{6} = 3$

(b) Solve $\frac{x+1}{4} = 6$

(c) Solve $\frac{2x-5}{3} = 5$

23.

(a) Simplify $\frac{16a^6b^7}{4a^5b}$

(b) Expand $4x(5x - 6)$

(c) Factorise $8x^2 + 12x$

(d) Solve $4x + 23 = 67$

24.

(a) Simplify $4a^5b^2 \times 5ab$

(b) Expand $(2x + 3)(x - 4)$

(c) Factorise $20x - 35$

(d) Solve $6x + 17 = 5$

25.

(a) Simplify $\frac{x^6 \times x^7}{x^{11}}$

(b) Expand and simplify $5x(2x - 1) - x(x - 12)$

(c) Factorise $x^2 - 6x - 16$

(d) Solve $11x - 14 = 7x - 46$

26.

(a) Simplify $4x - 2y + x - 5y$

(b) Expand and simplify $(3x - 1)(x - 4)$

(c) Factorise $14ab - 18a^2$

(d) Solve $21 - 4x = 5$

27.

(a) Simplify $\frac{32a^{10}b^9}{8a^7b^6}$

(b) Expand and simplify $(x + 3)(5 - x)$

(c) Factorise $24c^2d + 32c^3d$

(d) Solve $9x - 20 = -2$

28.

(a) Simplify $(x^3)^4$

(b) Expand $(x + 2)^2$

(c) Factorise $x^2 - 12x + 35$

(d) Solve $6(3x + 7) = 24$