IS EQUAL TO

Algebra 1

Solve the following problems.

1. Simplify: $4a + 6b - 2a - 3b$
2. Solve: $\frac{x}{5} - 2 = 6$
3. Sarah buys 4 oranges and 3 pears for £2.30. Oranges cost 35p each. Form an equation to find the cost of a pear.
4. Solve and represent on a number line: $2x - 4 \leq 8$
5. Find the next two terms in the sequence: 2, 6, 10, 14, ...
6. Expand and simplify: $(x - 4)(x + 1)$
7. Solve: $3x + 2y = 12$ and $2x + y = 7$
8. Expand

   (a) $4(x-3)$ (b) $2(a+5)$ (c) $6(3t-4)$ (d) $-3(y-2)$

9. Factorise completely

   (a) $4ab - 6b$
   (b) $5x^2 - 15xz$
   (c) $18pqr + 12pqs$

10. Solve these equations

    (a) $5x+2 = 27$ (b) $4(2x-1) = 28$ (c) $12 = 4(5-2x)$ (d) $-2(x+4) = 10$

11. Write down first 3 terms of the sequence with nth term as given below:

    (a) $4n$ (b) $-3n$ (c) $5n+2$ (d) $6n-4$

12. Work out the next term of each sequence

    (a) $5, 17, 37, 65, ...$
    (b) $3, 9, 19, 33, ...$
    (c) $2, 5, 9, ...$

13. Solve for x:

    (a) $4x - 3 = 17$
    (b) $3x + 5 = 14$

(c) $6x - 2 = 3x + 10$

14. Expand and simplify

(a) $(x-1)^2$ (b) $(x+4)^2$ (c) $(3x-2)^2$ (d) $(2x+5)^2$

15. Simplify the following expressions:

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

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

(c) $7x^2 + 3x - 2x^2 - 6x + x^2$

16. Expand and simplify these expressions:

(a) $2(x + 5)$

(b) $3(x - 3) + 4(2x + 1)$

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

17. Find the n-th term of the sequence:

(a) $2, 6, 10, 14, \ldots$

(b) $5, 11, 17, 23, \ldots$

(c) $1, 4, 7, 10, \ldots$

18. Factorise the following equations:

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

(b) $x^2 - x - 6$

(c) $x^2 + 2x - 15$

19. Solve the simultaneous equations:

(a) $x + y = 12, x - y = 4$

(b) $3x + 2y = 18, x + 2y = 10$

(c) $2x + y = 9, x - 2y = 1$

20. The first term of a sequence is 5, and the common difference is 6. Write the first 5 terms of the sequence and find the 10th term.

(a) First 5 terms

(b) 10th term