

Compound shapes with algebra – Solutions



Form and fully simplify an expression for the area of each compound shape.

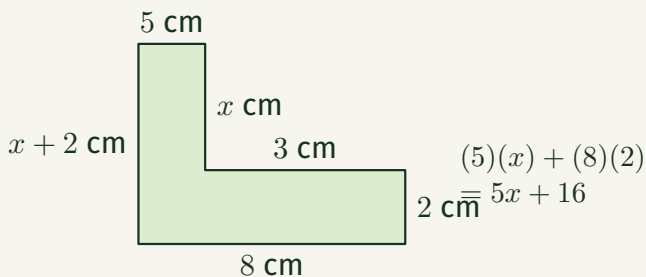
Name _____

Date _____

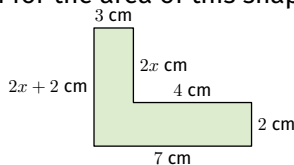
How to answer

Split the shape into two rectangles. Multiply each pair of sides, then add or subtract to get one simplified expression. Expand any brackets and collect like terms.

Worked example Form and simplify an expression for the area of this L-shape.



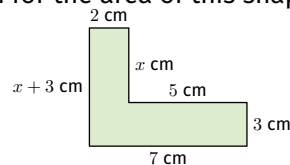
1. Form and simplify an expression for the area of this shape.



Solution

$$(3)(2x) + (7)(2) = 6x + 14$$

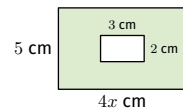
2. Form and simplify an expression for the area of this shape.



Solution

$$(2)(x) + (7)(3) = 2x + 21$$

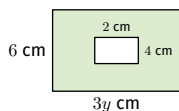
3. Form and simplify an expression for the area of this shape.



Solution

$$(4x)(5) - (3)(2) = 20x - 6$$

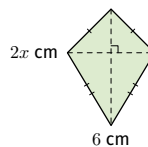
4. Form and simplify an expression for the area of this shape.



Solution

$$(3y)(6) - (2)(4) = 18y - 8$$

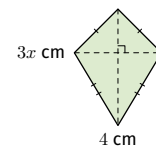
5. Form and simplify an expression for the area of this shape.



Solution

$$\frac{1}{2}(6)(2x) = 6x$$

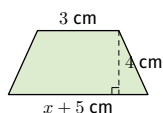
6. Form and simplify an expression for the area of this shape.



Solution

$$\frac{1}{2}(4)(3x) = 6x$$

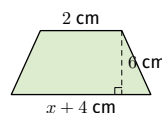
7. Form and simplify an expression for the area of this shape.



Solution

$$\frac{1}{2}(3 + x + 5)(4) = 2x + 16$$

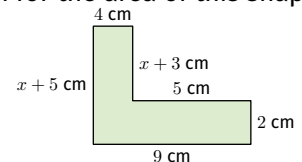
8. Form and simplify an expression for the area of this shape.



Solution

$$\frac{1}{2}(2 + x + 4)(6) = 3x + 18$$

9. Form and simplify an expression for the area of this shape.



Solution

$$(4)(x + 3) + (9)(2) = 4x + 30$$

Compound shapes with algebra – Solutions

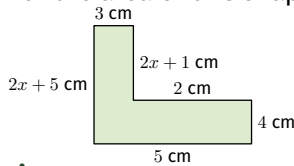
Form and fully simplify an expression for the area of each compound shape.



Name _____

Date _____

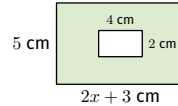
10. Form and simplify an expression for the area of this shape.



Solution

$$(3)(2x + 1) + (5)(4) = 6x + 23$$

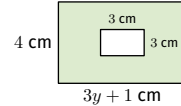
11. Form and simplify an expression for the area of this shape.



Solution

$$(2x + 3)(5) - (4)(2) = 10x + 7$$

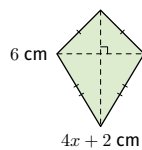
12. Form and simplify an expression for the area of this shape.



Solution

$$(3y + 1)(4) - (3)(3) = 12y - 5$$

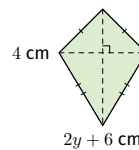
13. Form and simplify an expression for the area of this shape.



Solution

$$\frac{1}{2}(4x + 2)(6) = 12x + 6$$

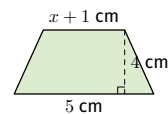
14. Form and simplify an expression for the area of this shape.



Solution

$$\frac{1}{2}(2y + 6)(4) = 4y + 12$$

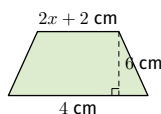
15. Form and simplify an expression for the area of this shape.



Solution

$$\frac{1}{2}(x + 1 + 5)(4) = 2x + 12$$

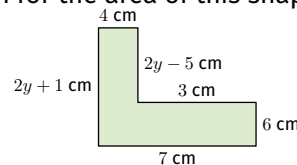
16. Form and simplify an expression for the area of this shape.



Solution

$$\frac{1}{2}(2x + 2 + 4)(6) = 6x + 18$$

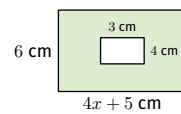
17. Form and simplify an expression for the area of this shape.



Solution

$$(4)(2y - 5) + (7)(6) = 8y + 22$$

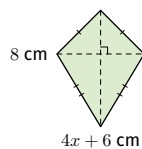
18. Form and simplify an expression for the area of this shape.



Solution

$$(4x + 5)(6) - (3)(4) = 24x + 18$$

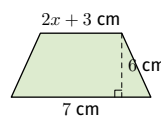
19. Form and simplify an expression for the area of this shape.



Solution

$$\frac{1}{2}(4x + 6)(8) = 16x + 24$$

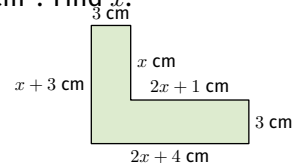
20. Form and simplify an expression for the area of this shape.



Solution

$$\frac{1}{2}(2x + 3 + 7)(6) = 6x + 30$$

21. The area of this shape is 75 cm². Find x .

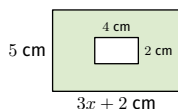


Solution

$$(3)(x) + (2x + 4)(3) = 9x + 12$$

$$9x + 12 = 75 \Rightarrow x = 7$$

22. The area of this shape is 47 cm². Find x .

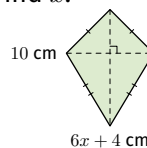


Solution

$$(3x + 2)(5) - (4)(2) = 15x + 2$$

$$15x + 2 = 47 \Rightarrow x = 3$$

23. The area of this shape is 170 cm². Find x .

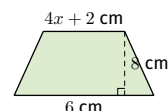


Solution

$$\frac{1}{2}(6x + 4)(10) = 30x + 20$$

$$30x + 20 = 170 \Rightarrow x = 5$$

24. The area of this shape is 128 cm². Find x .



Solution

$$\frac{1}{2}(4x + 2 + 6)(8) = 16x + 32$$

$$16x + 32 = 128 \Rightarrow x = 6$$