Lesson 3

Perimeter, Area & Volume : Year 9

Non Calculator

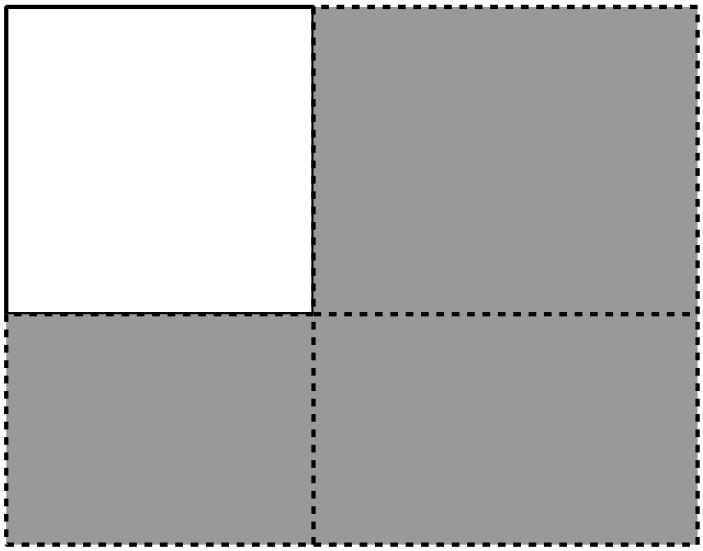
3.1 In this lesson we will...

- Look at the famous ***Growing Square*** problem.
- Progress onto calculating areas using algebra rather than just numbers.

3.2 The *Growing Square* problem

Consider a square of side length x cm.
It is given some food.
(A good square meal)
It grows !
By 5 cm to the right and 3 cm down.

Can you see why $(x + 5) (x + 3)$ must equal $x^2 + 8x + 15$?
Explain what you see.



3.3 Exercise

Question 1
Calculate the AREA in terms of x of these growing squares
Mathematicians call this *expanding the brackets*

(i) $(x + 6) (x + 3)$

(ii) $(x + 8) (x + 7)$

(iii) $(x + 7) (x + 5)$

(iv) $(x + 5) (x + 16)$

(v) $(x + 4) (x + 9)$

(vi) $(x + 8) (x + 12)$

(vii) $(x + 5)(x + 12)$

(viii) $(x + 25)(x + 7)$

(ix) $(x + 7)^2$

(x) $(x + 9)(x + 8)$

(xi) $(x + 14)(x + 3)$

(xii) $(x + 16)(x + 4)$

Question 2

Expand the brackets;

(i) $(2x + 7)(3x + 2)$

(ii) $(7x + 8)(7x + 2)$

(iii) $(3x + 1)(5x + 6)$

(iv) $(11x + 5)(6x + 1)$

(v) $(8x + 5)(x + 5)$

(vi) $(3x + 13)(4x + 10)$

(vii) $(3x + 7) (7x + 4)$

(viii) $(5x + 12) (4x + 5)$

(ix) $(2x + 9) (2x + 5)$

(x) $(6x + 11) (5x + 11)$

(xi) $(9x + 4) (3x + 8)$

(xii) $(3x + 16) (7x + 3)$

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