

29th September



CorbettmOths

Write 1.035353535... as a fraction

$$x = 1.0353535\dots$$

$$10x = 10.3535\dots$$

$$1000x = 1035.3535\dots$$

$$990x = 1025$$

$$x = \frac{205}{198}$$

Prove the sum of two consecutive odd numbers is even.

$$(2n+1) + (2n+3)$$

$$= 4n + 4$$

$$= 2(n+2)$$

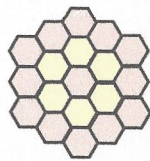
\therefore even



Pattern 1



Pattern 2



Pattern 3

$$3n^2 - 3n + 1$$

$$3 \times 10^2 - 3 \times 10 + 1 = 271$$

How many of these tiles are needed to make Pattern number 10?

$$1 \quad 7 \quad 19 \quad 37$$

$$6 \quad 12 \quad 18$$

$$6 \quad 6$$

$$a = 3$$

$$b = -3 \quad c = 1$$

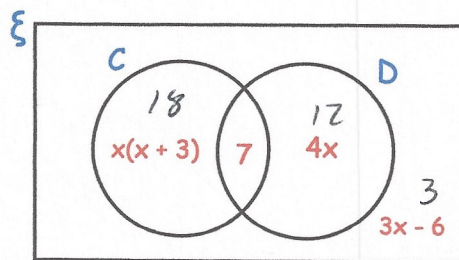
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The Venn diagram shows information about the pets owned by 40 students

- $\xi = 40$ students
- C = students who own a cat
- D = students who own a dog

$$x(x+3) + 4x + 7 + 3x - 6 = 40$$

$$x^2 + 3x + 4x + 3x - 39 = 0$$



$$x^2 + 10x - 39 = 0$$

A student is chosen at random. They own a cat. Work out the probability that they own a dog.

$$\frac{7}{25}$$

$$(x+13)(x-3) = 0$$

$$x = -13 \text{ or } x = 3$$