

Numbers Patterns

Pattern 1

Work these out on your calculator

$$142857 \times 1 =$$

$$142857 \times 2 =$$

$$142857 \times 3 =$$

$$142857 \times 4 =$$

$$142857 \times 5 =$$

$$142857 \times 6 =$$

What do you notice about the answers?

(If you want to know more why this works, try 142857×7)

Pattern 2

Work these out on your calculator

$$9 \quad - 1 \quad = 8$$

$$98 \quad - 21 \quad = ?$$

$$987 \quad - 321 \quad = ?$$

$$9876 \quad - 4321 \quad = ?$$

$$98765 - 54321 = ?$$

etc.

What do you notice?

Pattern 3

$$1 = ?$$

$$1 + 3 = ?$$

$$1 + 3 + 5 = ?$$

$$1 + 3 + 5 + 7 = ?$$

etc. What do you notice?

Pattern 4

$$1 \quad \times 9 \quad + 2 = ?$$

$$12 \quad \times 9 \quad + 3 = ?$$

$$123 \quad \times 9 \quad + 4 = ?$$

$$1234 \quad \times 9 \quad + 5 = ?$$

etc. What do you notice?

Pattern 5

Work these out on your calculator.
(be careful - there is no 8)

$$12345679 \times 9 = ?$$

$$12345679 \times 18 = ?$$

$$12345679 \times 27 = ?$$

$$12345679 \times 36 = ?$$

$$12345679 \times 45 = ?$$

Can you see what comes next?
What do you notice?

(This is known as a parlour trick and was invented by Lewis Carroll)

Pattern 6

Perhaps not as immediately remarkable as the others, but what do you notice about the answer to this sum?

$$987654321 - 123456789 = ?$$

Pattern 7

Try these

$$1 \times 3 + 1 = ?$$

$$3 \times 5 + 1 = ?$$

$$5 \times 7 + 1 = ?$$

$$7 \times 9 + 1 = ?$$

What do you notice?

Does this pattern happen with any two consecutive odd numbers?

What about even numbers?

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