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as usual the number of in the interval by
putting



The new ^{polymer} £50 note

$$25 \sum_{k=0}^{\infty} \frac{1}{2^k}$$

Emde, Funktionentafeln, (Teubner)p324)

#TuringChallenge



To celebrate Alan Turing featuring on the new £50 banknote, GCHQ have created their hardest puzzle ever in his honour. The Turing Challenge was put together by intelligence staff at GCHQ, where problem solving and a diverse mix of minds are at the heart of its work to help protect the UK from increasingly complex threats.

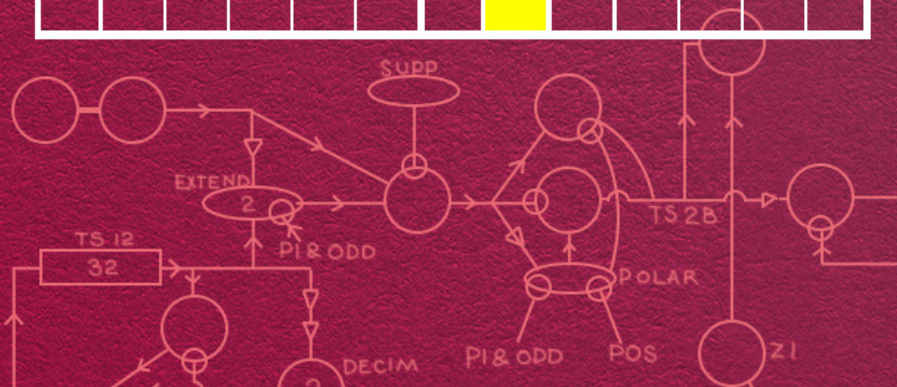
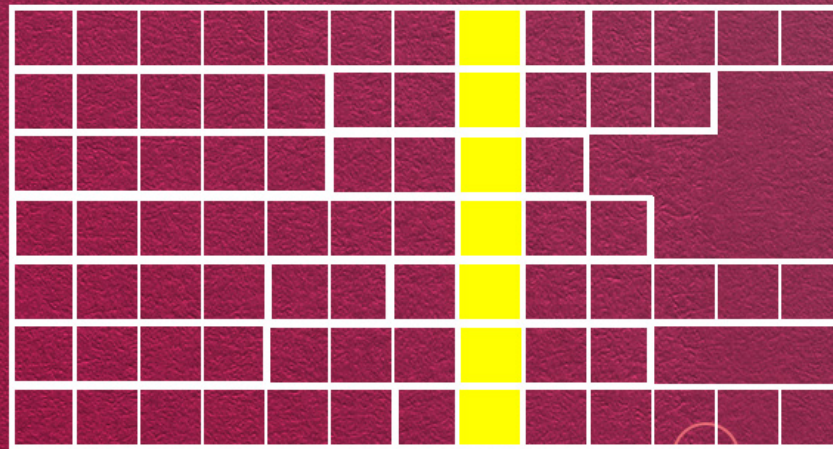
Solve the answers to the first 11 puzzles which should give you 11 single words or names which you'll need your very own Enigma simulator to decode! Stick with it! As Turing himself once said: "Sometimes it is the people no one can imagine anything of who do the things no one can imagine."

GCHQ have shared two of the puzzles in advance in this pack, and all puzzles will be revealed at 7am on March 25th on the GCHQ website: www.gchq.gov.uk/information/turing-challenge

GCHQ Turing Challenge

Puzzle 1 – ‘Hut 8’

The stylistic 8s in the pattern above the bank building on the front of the note refer to Hut 8, one of the sections of GC&CS. Hence the importance of the 8th column below!



1. Where was the location of GC&CS during WWII? (9,4)
2. What is the value of the new banknote? (5,6)
3. What is the usual name for the £ symbol? (5,4)
4. What does the G stand for in GC&CS, and also in its successor GCHQ? (10)
5. Which organisation is launching the new banknote? (4,2,7)
6. Who led Hut 8, and is commemorated on the new banknote? (4,6)
7. Which cryptographic device used by Germany did GC&CS break? (6,7)

GCHQ Turing Challenge

Puzzle 5 – ‘Foil’

Alan Turing provided the theoretical underpinnings for the modern computer. The image of the microchip on the foil is a recognition of that achievement.

Complete the two sunflowers with 4-letter words spelt outwards from the central 50s, so that adjacent words differ by exactly one letter.

The example shows how BANK can be changed to NOTE in four steps. Once you have completed the sunflowers, find the central four-letter word which differs by exactly one letter from each of the two words it's connected to through the microchips, to solve the puzzle!

