

Books are ordered using ISBNs. Computers need automatic checks on the accuracy of the data input. **To do this ISBNs use a check digit.**

**0-486-25202-7**

This final digit is the check digit.

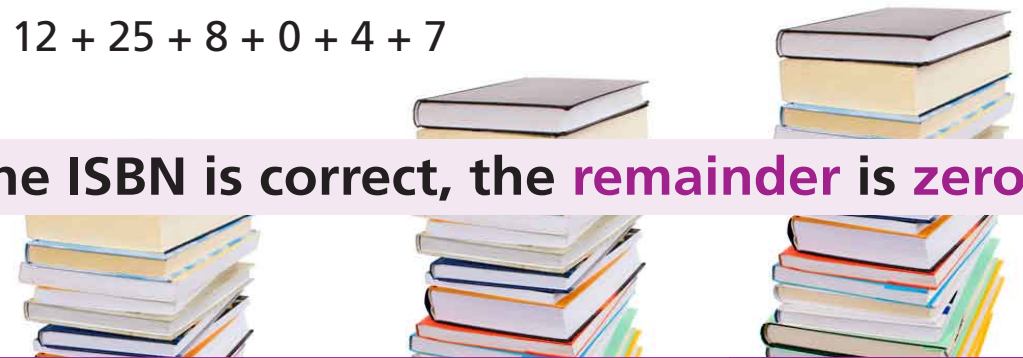
- Multiply the first digit by 10, the second by 9, the third by 8 and so on and then find the sum.
- Divide by 11 and write down the remainder.

$$(0 \times 10) + (4 \times 9) + (8 \times 8) + (6 \times 7) + (2 \times 6) + (5 \times 5) + (2 \times 4) + (0 \times 3) + (2 \times 2) + (7 \times 1)$$

$$= 0 + 36 + 64 + 42 + 12 + 25 + 8 + 0 + 4 + 7$$

$$= 198$$

**198 ÷ 11 = 0** If the ISBN is correct, the remainder is zero.



Check some other ISBNs.

Two of these ISBNs are incorrect. Which ones?

The Colossal Book of Short Puzzles and Problems	0-393-06124-0
Celtic Design	0-500-27629-3
Can You Solve These?	0-906212-22-7

Work out the check digit for *Euclid's Window* ISBN 0-14-100909-?

**Explain how to calculate a check digit.**

**This ISBN ends in X.** *The Book of Numbers* ISBN 0-387-97993-**X**  
When is **X** used as a check digit?