

# DIVISIBILITY

CANSU OLCE

A STAR MATHS ([www.astarmaths.com.au](http://www.astarmaths.com.au))

1. A, B, C are positive integers.

$$B \overline{) \begin{array}{r} 2 \\ A \end{array}} \quad 3 \overline{) \begin{array}{r} B \\ C \end{array}}$$

$\underline{\quad}$  3                   $\underline{\quad}$  2

Find the minimum value of A+C.

2. A, B and C are natural numbers.

$$B+2 \overline{) \begin{array}{r} 3 \\ A \end{array}} \quad 4 \overline{) \begin{array}{r} B+1 \\ C \end{array}}$$

$\underline{\quad}$  1                   $\underline{\quad}$  3

Find B in terms of A and C.

3. 1AB is a three-digit number.

$$25 \overline{) \begin{array}{r} A \\ 1AB \end{array}}$$

$\underline{\quad}$  3

Find A+B.

4. K, L, M are positive integers.

$$L \overline{) \begin{array}{r} 4 \\ K \end{array}} \quad L \overline{) \begin{array}{r} 3 \\ M \end{array}}$$

$\underline{\quad}$  3                   $\underline{\quad}$  5

Find M in terms of K.

5. 1AB is a three-digit number.

$$\begin{array}{r} A \\ 25 \overline{) 1AB} \\ \underline{\phantom{00}00} \\ 3 \end{array}$$

Find A+B.

6. AB is a two digit number and C is an one digit number.

$$\begin{array}{r} 32 \\ AB \overline{) 424} \\ \underline{\phantom{00}00} \\ C \end{array}$$

Find the remainder when AB is divided by C.

7. ABC is a three digit and BC is a two digit number.

$$\begin{array}{r} 20 \\ BC \overline{) ABC} \\ \underline{\phantom{00}00} \\ 1 \end{array}$$

Find A+B+C.

8. 2A5B is a four digit number and is divisible by 3. Find the number of possible values for A+B.

9. 47A is a three digit number. When 8 is added to 47A, the new number is divisible by 9, find A.

10. 22222222222222 is a 14 digit number. Find the remainder when it is divided by 9.

11. When three-digit number  $ABC$  is divided by 11, the remainder is 4. Find the remainder if  $C2AB5$  is divided by 11.
12. When three-digit number  $ABC$  is divided by 10, the remainder is 1. When it is divided by 3, the remainder is 2. How many different values can be found for  $A+B$ ?
13. Four digit number  $725A$  is divisible by 6. How many different  $A$  values can be found for  $A$ ?
14.  $42A5B$  is a five-digit number and is divisible by 5 and 9. Find the sum of possible  $A$  values.
15.  $462AB$  is a five digit number and is divisible by 30. Find the maximum value for  $A$ .

## ANSWERS

1. 25
2. C-A
3. 15
4.  $(K-23)/12$
5. 15
6. 5
7. 7
8. 6
9. 8
10. 1
11. 7
12. 6
13. 1
14. 9
15. 9

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