



DIGIT DETECTIVE

Find the digit to replace the ? mark that makes this equation true:

$$12 + ? = 19$$

Each ? is a missing digit from 0 to 9 either the same or different digits.

$$? + 8 = 2?$$

$$2? + 4 = 1?$$

$$33 + ? = 4?$$

What do you notice?

You are a detective and you have to discover what digits the question marks stand for.

They can be any digit from 0 to 9.

They can be the same digit or different digits.

How will you find the missing digits?

What do you notice?

How many solutions are there to the calculations?

What clues did you use to help you work out your answers?

Explain why this happens?

Now find the missing digits in these calculations:

(a) $3?6 + 5? = 383$ (b) $8?3 - ?? = 815$

What clues did you use? Explain how you solved the puzzles.

In the next two puzzles each of the digits must be different.

(c) Find the largest possible total for $?? + ?? =$

Explain why it is the largest.

Find the smallest possible total and explain?

(d) What about $?? \times ??$

(e) Now find the missing digit in this division: $816 \div ? = 272$

HELP

Detectives often work with a partner or a group so you might find it helps to work together with other people on these cases and help each other.

NEXT

$$\begin{array}{r} \text{○} \text{○} \\ \text{◇} \text{◇} \\ + \text{□} \text{□} \\ \hline \text{○} \text{◇} \text{□} \end{array}$$

Find the Numbers

The 3 symbols, green circle, blue rhombus and pink square, stand for 3 different digits that make the addition sum correct.

Again you need to be a digit detective and find the clues that will help you to solve this puzzle.

<https://aiminghigh.aimssec.ac.za/years-6-7-find-the-numbers/>