

Fraction clues

Children use their knowledge of fractions and tables to find mystery numbers.

Skills practised:

- Finding half, third and quarter of numbers
- Recognising multiples of 2, 3 and 4

Conjecture: *If you find a fraction of a number which is a multiple of the denominator, you will always get a whole number answer (to be discussed after the problem, not before!).*

What to do:

Children work individually or in pairs.

1. Use your knowledge about finding fractions of numbers to solve this logic puzzle.

I am a whole number between 10 and 25.

If you halve me, your answer will not be a whole number.

If you find $\frac{1}{3}$ of me, your answer will be a multiple of 5.

If you try to find $\frac{1}{4}$ of me, you may get a headache!

If you find $\frac{1}{5}$ of me, your answer will be a whole number.

What am I?

2. Now have a go at this one!

I am a very special number between 10 and 20.

I am special because if you find $\frac{1}{2}$ of me, $\frac{1}{3}$ of me, $\frac{1}{4}$ of me, or even $\frac{1}{5}$ of me, you will get a whole number answer!

What am I?

What if the number in puzzle two was between 20 and 30? Or between 30 and 40? Can you think of any other numbers that would satisfy all the other clues? What do you notice about them? See if you can think of another 'special' number and write your own fraction clues about it, so that another pair/child can work it out.

HINT: Can you use your knowledge of the 2, 3 and 4 times tables to help you?

What happens if you find a third of any number in the 3 times table?

Aims:

- To consolidate the link between fractions and division
- To use clues to solve logic puzzles

Minimum number of calculations expected
20

Fraction clues

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I am a whole number between 10 and 25.
If you halve me, your answer will not be a whole number.
If you find $\frac{1}{3}$ of me, your answer will be a multiple of 5.
If you try to find $\frac{1}{4}$ of me, you may get a headache!
If you find $\frac{1}{5}$ of me, your answer will be a whole number.
What am I?

2. Have a go at this one!

I am a very special number between 10 and 20.
I am special because if you find $\frac{1}{2}$ of me, $\frac{1}{3}$ of me, $\frac{1}{4}$ of me, or even $\frac{1}{6}$ of me, you will get a whole number answer!
What am I?

Challenge

What if the number in puzzle two was between 20 and 30? Or between 30 and 40? Can you think of any other numbers that would satisfy all the other clues? What do you notice about them? Think of another 'special' number and write your own fraction clues about it for someone else to work out.