The 4 operations with positive rational numbers including fractions, decimals...

use the 4 operations with positive rational numbers including fractions, decimals and percentages to solve problems using efficient calculation strategies

Learning intention

- use the 4 operations with positive rational numbers including fractions, decimals and percentages to solve problems using efficient calculation strategies

Teach and model

- solving addition and subtraction problems involving fractions and decimals; for example, using rectangular arrays with dimensions equal to the denominators...
- choosing an appropriate numerical representation for a problem so that efficient computations can be made, such as 12.5%, \frac18, 0.125 or \frac{125}{1000}
- developing efficient strategies with appropriate use of the commutative and associative properties, place value, patterning, and multiplication facts to solve...

Check understanding

- Explain the main idea in the 4 operations with positive rational numbers including fractions, decimals... using an example.
- Show the idea in a second way: with words, a model, a diagram or symbols.
- Apply the idea to a short unfamiliar situation and justify the result.

Teaching cautions

- Ask the student to explain their choice, not only state an answer.
- Check that key vocabulary is understood in a new example.
- Mix representations so the skill is transferred rather than copied.

Quick lesson sequence

- Connect to prior knowledge and introduce the key vocabulary.
- Model one clear example, then solve a second example together.
- Finish with an independent check and a short student explanation.