Diving into Mastery – Diving

Adult Guidance with Question Prompts

Children use the inverse operation to check calculations. They also need to know that using the inverse is just one way to check calculations. They can also use equipment or a number line as appropriate.

What is the inverse of addition?

What is the inverse of subtraction?

What inverse calculation could you use to check Ben's first addition?

Is there more than one possibility?

Which will you choose? Why?

Can you use equipment or a number line to prove your inverse calculation is correct?

Which is the most efficient way to check? Why?

Check Calculations

Ingrid Inverse loves to check calculations. Can you help her check Ben's calculations using the inverse? Ingrid has done the first one.

Calculation	Inverse	Correct? ✓ or ✗
12 + 5 = 17	17 - 5 = 12	✓
25 - 13 = 10		
19 + 9 = 28		
6 + 15 = 22		
32 - 11 = 21		

Use equipment or a number line to prove your inverse calculation is correct.

Diving into Mastery – Deeper

Adult Guidance with Question Prompts

Children use the inverse operation to check calculations. Children will need concrete equipment to choose from if desired.

What mistake has Ben made with his calculation?

What should he have written?

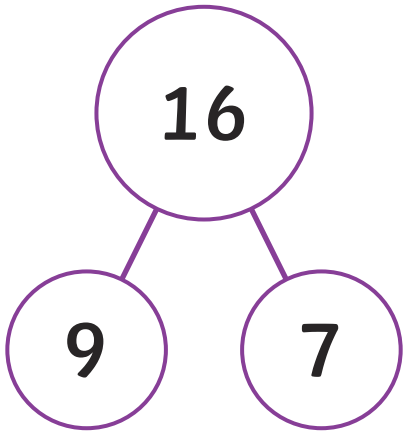
Is there more than one way of writing the inverse?

Apart from using the inverse, how else could we check his calculation?

Why have you chosen to check it that way?

Check Calculations

Ben used a part-whole model for this calculation:



To check his calculation, he wrote the inverse:

$$9 - 7 = 16$$

Explain Ben's mistake.

What would Ben's addition calculation be?

How many inverse calculations can you write for his addition calculation? Use equipment or a number line to check your calculations.

Diving into Mastery – Deepest

Adult Guidance with Question Prompts

Children could use base ten blocks to represent the calculation practically; they could also draw number lines or part-whole models. They use their understanding of place value to help them solve the problem.

What do you notice about the calculations at the top and the numbers in Ingrid's bar model?

How are they the same?

How are they different?

How can you use the calculations to help you?

What model could you draw to represent the calculations?

Can you represent each calculation with a number line/base ten blocks?

Check Calculations

Ingrid knows:

$12 + 7 = 19$

$7 + 12 = 19$

She knows the inverses are:

$19 - 7 = 12$

$19 - 12 = 7$

Can you write four calculations to go with Ingrid's bar model?

Draw or make as many different representations as you can that match the bar model.

How many different pieces of equipment could you use or draw? Can you think of any other ways to represent it?