

Working Backwards

CKSTEM Math Problem Solving · Grades 4–7

Try each problem on your own first — then watch the solution videos.

★ Reverse the Operations

Sarah spent half of her allowance on a book. Then she spent \$5 on lunch. She has \$3 left. How much allowance did she start with?

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LO Reverse the Operations

Ava and Ben are sorting welcome cards. Ava gives 18 cards to Ben. After that, both Ava and Ben have 47 cards. How many cards did Ava have at the start?

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L1 Reverse the Operations (multi-op)

A helper doubles her stack of welcome notes by adding an equal pile. Then she gives away 6 notes. After both steps she has 18 notes. How many notes did she start with?

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L2 Reverse Transfers, Track Everyone

Three volunteers sort crayons. First Mira gives 6 crayons to Jay. Then Sol gives 4 crayons to Mira. After that, all three volunteers have 20 crayons each. How many crayons did Mira have at the start?

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L3 Find the Invariant First

On Leo's 14th birthday, Amir is 41 years old — notice 14 and 41 use the same two digits reversed. The NEXT time Leo's age is the digit-reverse of Amir's age, how old will Leo be?

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L4 Reverse the Sum, Not the Parts

Two food pantries each start with a positive whole number of meal boxes. The same three steps happen to each: 10 boxes are added, then the total is doubled by a sponsor, then 30 boxes are sent out. After all three steps, the two pantry counts add up to 130. How many possible starting counts could Pantry A have had?

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L5 Constant Speeds, Proportional Distances

Two couriers start at the same time from opposite ends of a hallway and walk back and forth at constant but different speeds. They first meet 30 m from the welcome desk. Each turns once at the ends, then they meet again, this time 20 m from the medicine room at the other end. How long is the hallway?

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L6 Short List, Then Filter

Two couriers start at the same time from opposite ends of a hallway and walk back and forth at constant but different speeds. Their first meeting is 27 m from the welcome desk, and their third meeting is 15 m from the welcome desk. The faster courier walks 2 m/min more than the slower one, and both speeds are whole numbers of metres per minute. How long is the hallway?

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