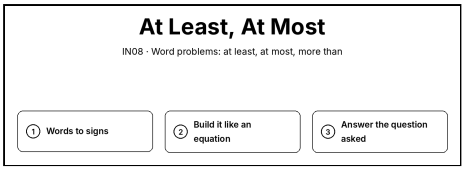
At Least, At Most: teacher script

IN08-V1 · IN08 Word problems: at least, at most, more than · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 95 seconds as a video.

01



Say. Word problems. First, words to signs. Then build the inequality like an equation. And at the end, answer the question asked.

Draw. Write the title “At Least, At Most” and the steps: 1. Words to signs; 2. Build it like an equation; 3. Answer the question asked.

02

I have €230. Books cost €17 each. At most how many can I buy, and still have at least €25?

Say. I have 230 euros, and books cost 17 euros each. At most how many can I buy, and still have at least 25 euros for dinner?

Draw. Clear the board. Write “I have €230. Books cost €17 each. At most how many can I buy, and still have at least €25?” in a box at the top.

03

I have €230. Books cost €17 each. At most how many can I buy, and still have at least €25?

$$230 - 17n \geq 25 \quad \text{at least: } \geq$$

Say. Let n be the number of books. What is left is 230 minus 17 n, and at least means greater than or equal to: it must be at least 25.

Draw. Write 230 − 17n \ge 25 on the next line. Beside it, write “at least: ≥”.

04

I have €230. Books cost €17 each. At most how many can I buy, and still have at least €25?

$$230 - 17n \geq 25 \quad \text{at least: } \geq$$
$$17n \leq 205$$

Say. So 17 n is at most 205.

Draw. Write 17n \le 205 on the next line.

05

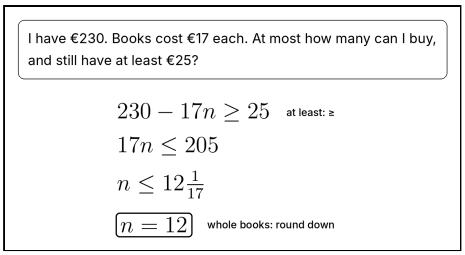
I have €230. Books cost €17 each. At most how many can I buy, and still have at least €25?

$$230 - 17n \geq 25 \quad \text{at least: } \geq$$
$$17n \leq 205$$
$$n \leq 12\tfrac{1}{17}$$

Say. Divide by 17: n is at most 12 and 1 seventeenth.

Draw. Write n \le 121/17 on the next line.

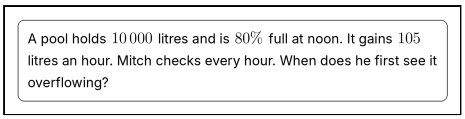
06



Say. You can only buy whole books, so round down: at most 12 books. Check: 12 books leave 26 euros.

Draw. Write n = 12 and box it on the next line. Beside it, write “whole books: round down”.

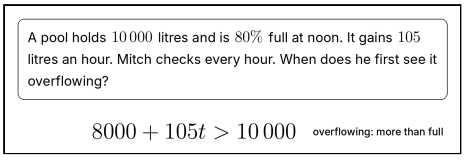
07



Say. A pool holds 10 thousand litres, and at noon it is 80 percent full. It gains 105 litres an hour. Mitch checks every hour. When does he first see it overflowing?

Draw. Clear the board. Write “A pool holds 10 000 litres and is 80\% full at noon. It gains 105 litres an hour. Mitch checks every hour. When does he first see it overflowing?” in a box at the top.

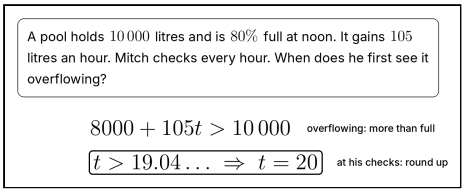
08



Say. 80 percent of 10 thousand is 8 thousand. Overflowing means more than 10 thousand: 8 thousand plus 105 t is more than 10 thousand.

Draw. Write 8000 + 105t > 10 000 on the next line. Beside it, write “overflowing: more than full”.

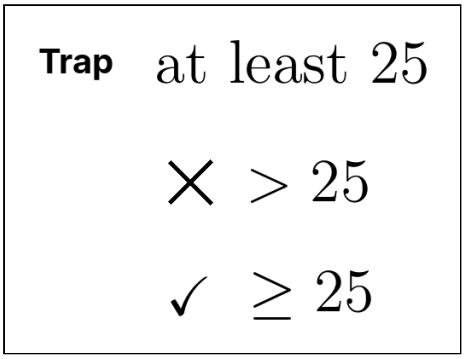
09



Say. t is more than 19 point 0 4. At his hourly checks, round up: 20 hours after noon, which is 8 AM the next day.

Draw. Write t > 19.04\ldots ⇒ t = 20 and box it on the next line. Beside it, write “at his checks: round up”.

10



Say. Watch for the trap: at least 25 includes 25 itself. It is greater than or equal to, not greater than.

Draw. Clear the board. Write “Trap” and at least 25. Below, write > 25 and cross it out ×. Then write \ge 25 with a tick ✓.

11

Your turn

Words to signs, then solve.
Round the right way; answer the question asked.

Say. Now it is your turn. Words to signs, then solve. Round the right way, and answer the question asked.

Draw. Point to today’s activity: Words to signs, then solve. Round the right way; answer the question asked.