

Answer Key

The load-bearing move is the SPLIT: to add to 8 you break the other number into (2 + the rest) so 8 can grab its 2 and become 10. If she wobbles, go back to the two ten-frames on page 2 and physically slide two counters over — the picture is the proof. At the dinner table, hand her 8 of something and 5 more and ask 'how many to make ten?' before she counts the rest.

2 • The Machine Runs on Tens

- Ex 1: move 2 counters. The first frame becomes a full ten, and 4 are left over $\rightarrow 10$ and $4 = 14$. ($8 + 6 = 14$)
- Ex 2a: $9 + 3 \rightarrow$ move 1 (9 needs 1 to reach ten); 2 left over $\rightarrow 10$ and $2 = 12$
- Ex 2b: $7 + 5 \rightarrow$ move 3 (7 needs 3 to reach ten); 2 left over $\rightarrow 10$ and $2 = 12$
- Ex 3: move 1 counter $\rightarrow$ a full ten and 5 left = 15. ($9 + 6 = 15$)

3 • The Splitting Trick

- Ex 1: split the 6 into 2 and 4 (8 grabs the 2 to make ten). $10 + 4 = 14$
- Ex 2a: $8 + 5 \rightarrow$ split 5 into 2 and 3; $10 + 3 = 13$
- Ex 2b: $9 + 4 \rightarrow$ split 4 into 1 and 3; $10 + 3 = 13$
- Ex 2c: $7 + 6 \rightarrow$ split 6 into 3 and 3; $10 + 3 = 13$
- Ex 3: bond of 5 drawn as 2 and 3 (the 2 arrows up to the 8); answer 13. Accept any drawing where the 5 splits into 2 + 3.

4 • From Picture to Numbers

- Ex 1a: $8 + 3 \rightarrow 8 + 2 + 1 = 10 + 1 = 11$
- Ex 1b: $6 + 7 \rightarrow$ start at 7 (the larger): $7 + 3 + 3 = 10 + 3 = 13$
- Ex 1c: $9 + 7 \rightarrow 9 + 1 + 6 = 10 + 6 = 16$
- Ex 2: $5 + 8 \rightarrow$ flip to $8 + 5$ (start at the bigger number), $8 + 2 + 3 = 10 + 3 = 13$. Answer 13. She should CIRCLE the 8 as the start.
- Ex 3: bond of 8 into 1 and 7, feeding the 9; chain $9 + 1 + 7 = 10 + 7 = 17$

5 • Machine Speed

- Ex 1: $7 + 5 = 7 + 3 + 2 = 10 + 2 = 12$
- Ex 2 (start from the larger number): $8+7=15 \cdot 8+6=14 \cdot 9+5=14 \cdot 8+7=15 \cdot 9+4=13 \cdot 8+8=16$. [shown as $8+7, 6+8, 9+5, 7+8, 4+9, 8+8$]
- Ex 3: $6 + 5 = 11$ and $7 + 4 = 11 \rightarrow$ BOTH equal 11, so neither is bigger (they tie). Sam is wrong that $7+4$ must be more just because 7 is bigger than 6.

6 • Find the Hidden Ten

- Ex 1: $6 + 4 + 5 \rightarrow$ the 6 and 4 make 10 first, then $10 + 5 = 15$
- Ex 2a: $7 + 3 + 8 \rightarrow$ pair $7+3=10$, then $10 + 8 = 18$
- Ex 2b: $5 + 6 + 5 \rightarrow$ pair $5+5=10$, then $10 + 6 = 16$
- Ex 2c: $2 + 9 + 8 \rightarrow$ pair $2+8=10$, then $10 + 9 = 19$
- Ex 3: $4 + 9 + 6 \rightarrow$ circle 4 and 6 (they make ten), then $10 + 9 = 19$. Circling 9+anything doesn't make a clean ten here, so the 4 and 6 are the pair.

7 • Case Closed at the Bakery

- Ex 1: $8 + 6 = 14$ cookies (make ten: $8 + 2 + 4 = 10 + 4$)
- Ex 2: $7 + 5 = 12$ stickers ($7 + 3 + 2 = 10 + 2$). The Martian has 12.
- Ex 3 (the trap): Sam is WRONG. He wrote $8 + 5 = 8 + 2 + 5 = 15$ -- he made the 2 to reach ten but forgot to TAKE it from the 5, so he counted the 2 twice. Right answer: $8 + 5 = 8 + 2 + 3 = 10 + 3 = 13$. The split must come OUT of the other number.
- Ex 4 (counter-trap): Sam is RIGHT this time -- $9 + 3 = 9 + 1 + 2 = 10 + 2 = 12$. Don't cross out a correct one just because Sam did the last one wrong!