Welcome to Parent Math Night

Cardiff Elementary

Grades

Kindergarten

Through 2nd

What are we doing at Cardiff Elementary to build students to this level of thinking?

Computational Fluency

Problem Solving

Computational Fluency

Accurate

Efficient

Flexible

Appropriate

Essential Questions:

- *How do we "move" children from counting to combine numbers to, fluently adding amounts to combine numbers?*

- *How do we have students persevere in applying their knowledge of computational fluency to problems that are not familiar to them?*

Progression of Computational Fluency
Kinder Through 2nd Grade

1. Knowing One More
2. Knowing Small Doubles
3. Knowing the Combinations of Ten
4. Knowing Ten and Some More
5. Doubles and Doubles Plus One
6. Knowing All Combinations Through 5/10
7. Use Make-a-Ten and Some More Strategy
8. Combining Groups of Tens
9. Combining Tens and Ones

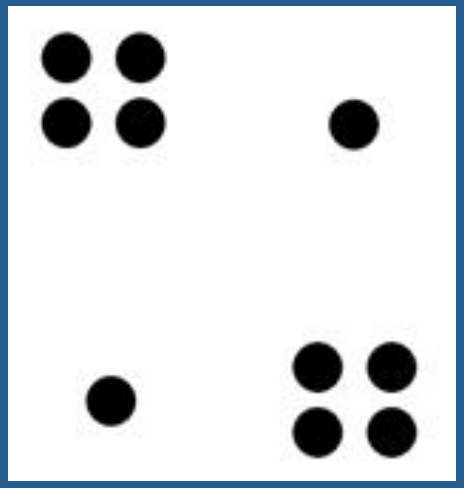
Levels of Understanding

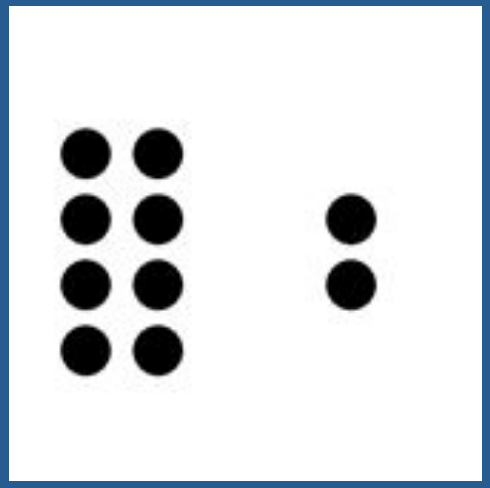
Level 1
Counting by ones
(or groups)

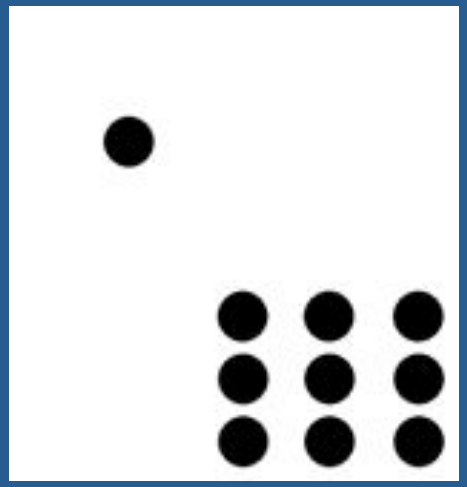
Level 2
Using strategies based
on amounts
(Written)

Level 3
Mentally

Moving Children from Counting to Add to Knowing Amounts to Add

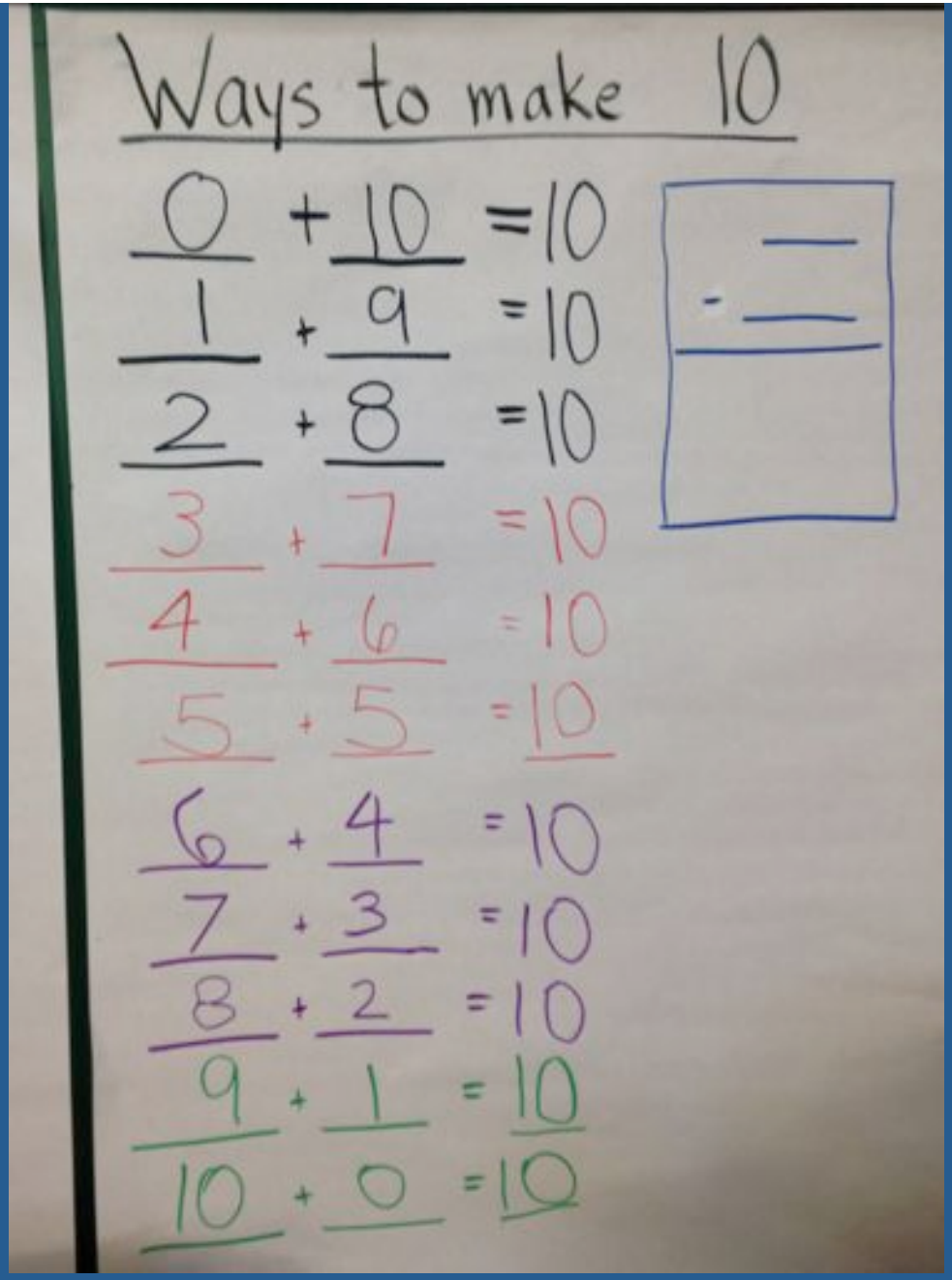






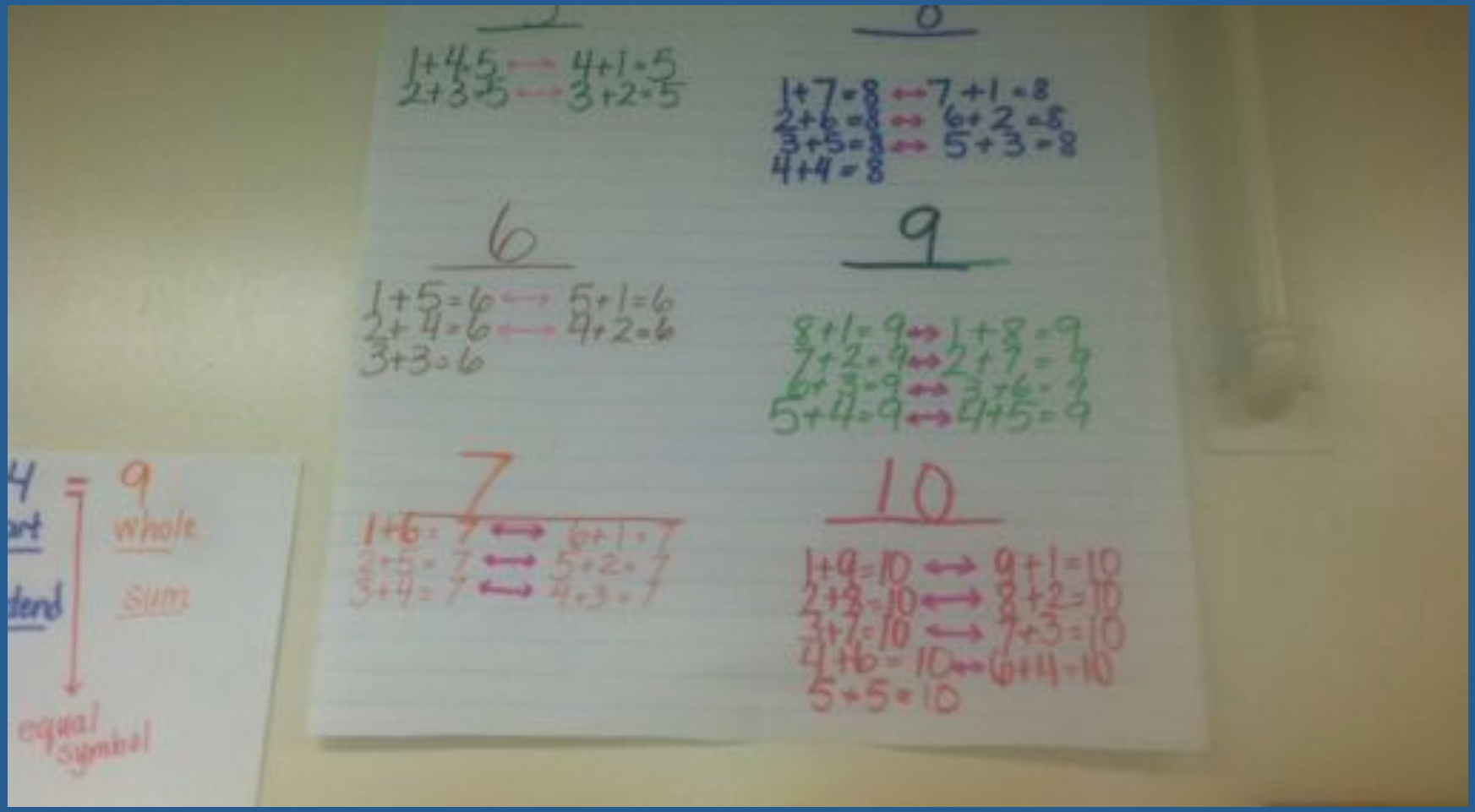
Dot Card Activities


13



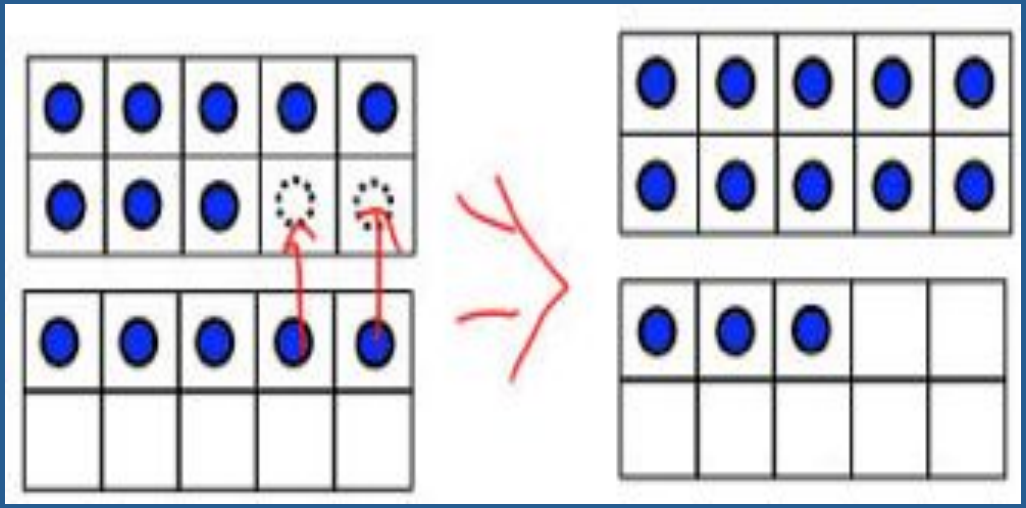
The Importance of Knowing of Combinations of Ten

Knowing Combinations Through Ten



“Make-a –Ten and Some More Strategy

8 + 5 *is like* 10 ad 3



Making a Ten-and-More Strategy

9 + 4

8 + 5

8 + 6

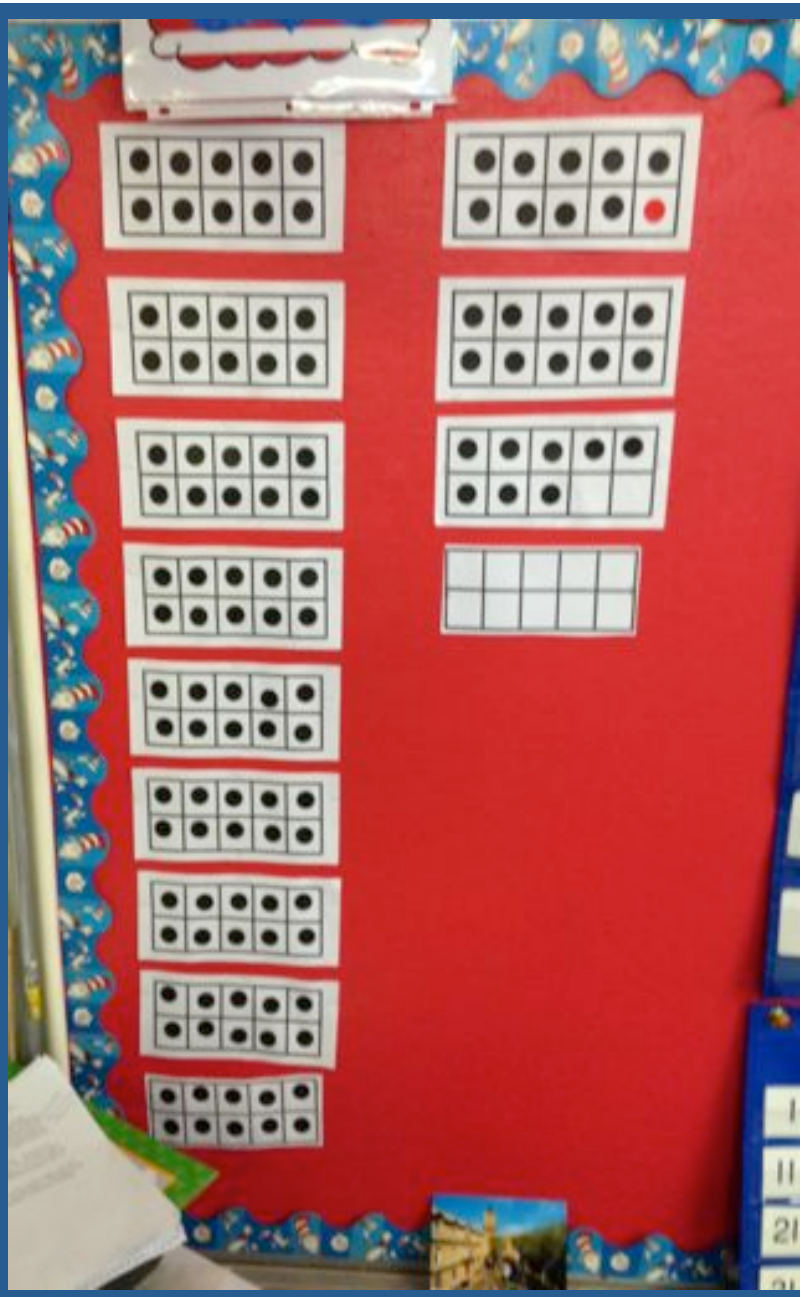
7 + 6

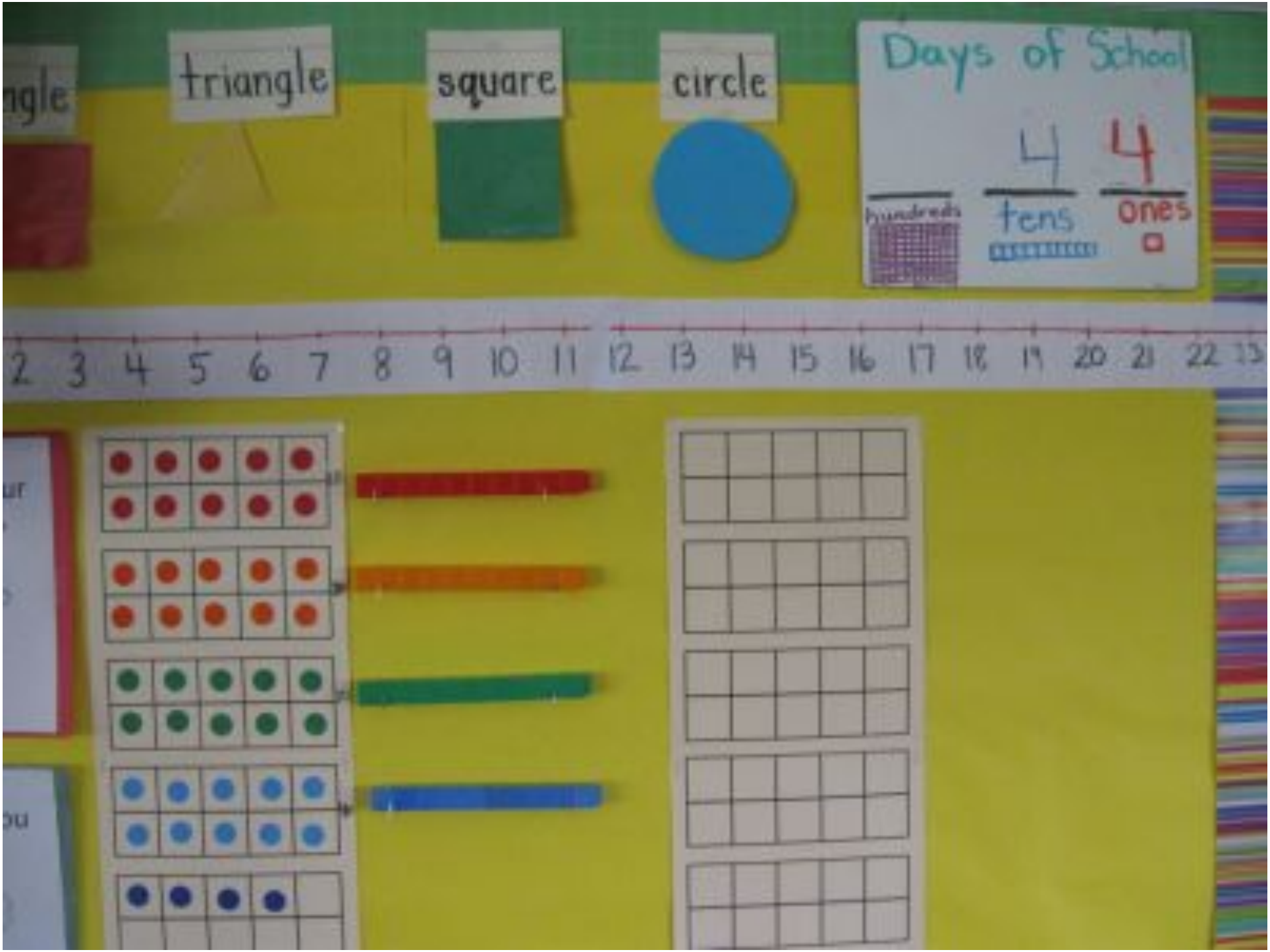
9 + 6

8 + 7

Combining Tens and Ones

Making Sense of Higher Numbers




triangle
square
circle
Days of School
4
4
hundreds
tens
ones
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

What we are we doing at Cardiff Elementary to build students to this level of thinking:

- On your index card, write the following numbers in a line on the top:

9 5 1 5 7 3 6 14

What we are we doing at Northridge Elementary to build students to this level of thinking:

- Can you solve this problem mentally?

49 + 38

What mathematical knowledge did you need to know to solve?

- Can you solve this problem mentally?

247 + 378

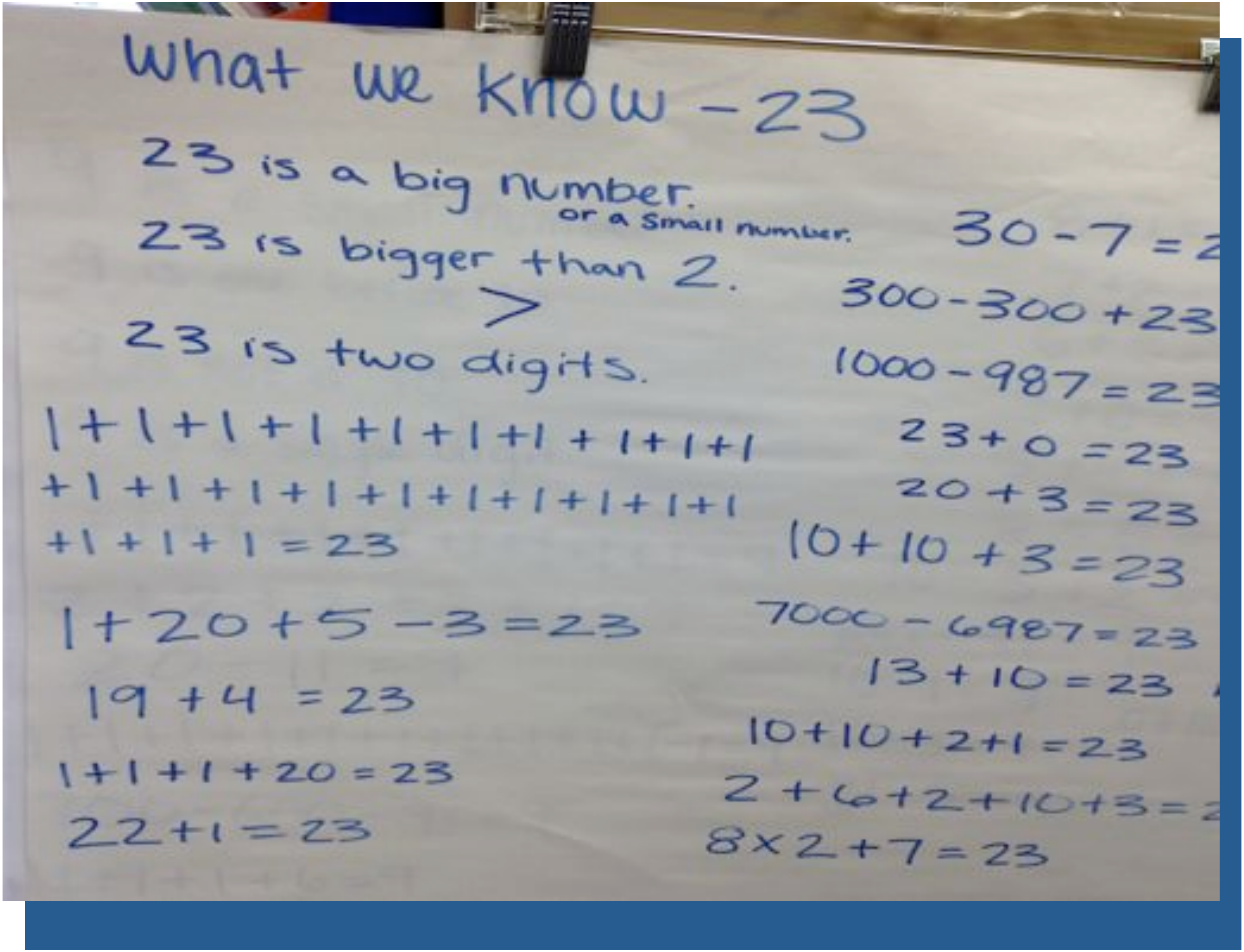
What mathematical knowledge did you need to know to solve?

- How Does Horizontal Computation Help with Relational Thinking? (Algebra?)

$$247 + 378 = 248 + \square$$

$$247 = (2 \times a) + 47$$

What mathematical knowledge did you need to know to solve?


What we know - 23
23 is a big number.
or a small number.
23 is bigger than 2.
>
23 is two digits.
1+1+1+1+1+1+1+1+1+1
+1+1+1+1+1+1+1+1+1+1
+1+1+1=23
1+20+5-3=23
19+4=23
1+1+1+20=23
22+1=23
30-7=
300-300+23
1000-987=23
23+0=23
20+3=23
10+10+3=23
7000-6987=23
13+10=23
10+10+2+1=23
2+6+2+10+3=
8×2+7=23

Subtraction: *"The Difference of"*

What is the difference of these two numbers?

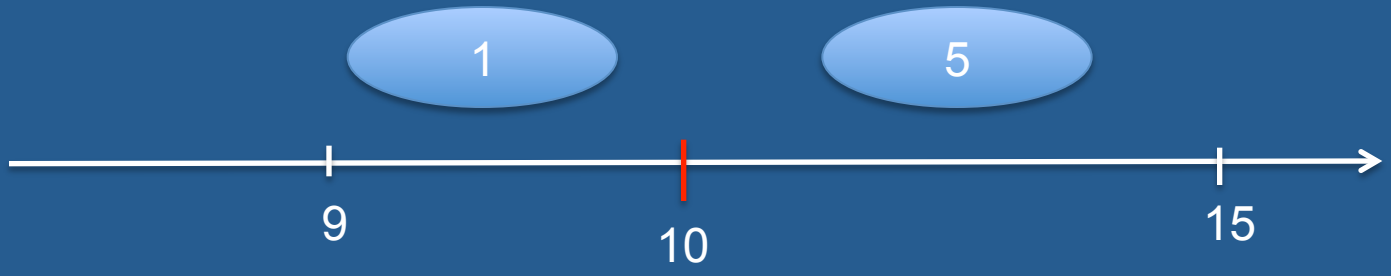
155 - 89

Can you solve this in 3 or more ways?

Subtraction Facts Through Twenty: *"The Difference of"*

15-9

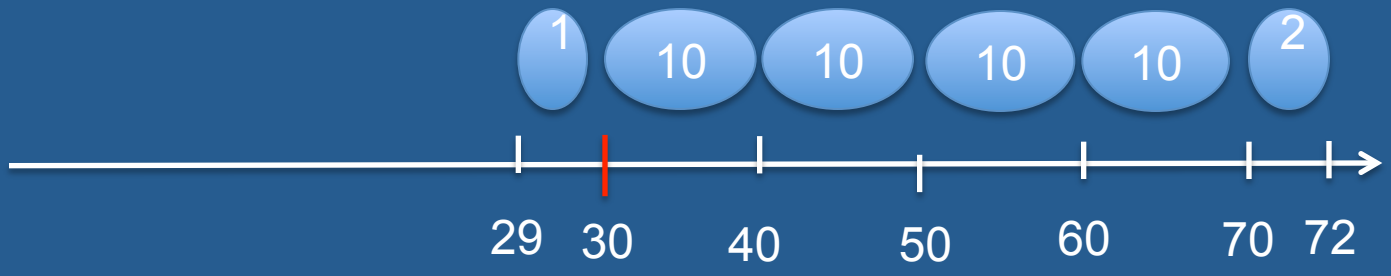
- Count Back
- Count Up By Ones
- Using an Anchor of Ten to "add up"



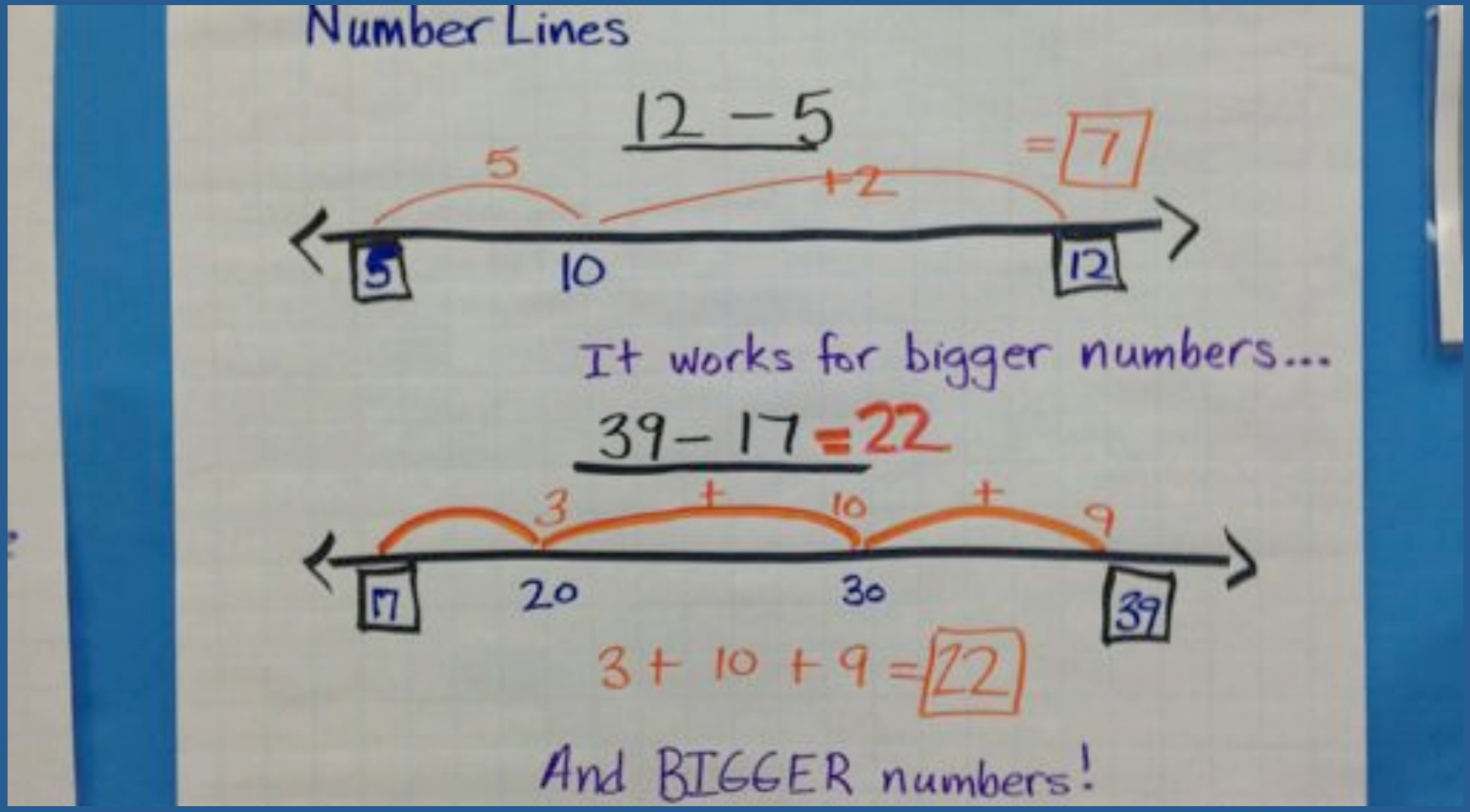
Subtraction With Larger Numbers: *"The Difference of"*

72 - 29

- Count Back
- Count Up By Ones
- Using Anchors of Tens to "add up"



“Jump Up Method” for Subtraction



Examples of
Kindergarten Problem Solving

Problem Solving

The chick caught 4 butterflies, but the duckling caught 7 butterflies. How many more did the duckling catch?

[8, 12]

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[8, 12]


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utterflies. How
any more did the
uckling catch?
[8, 12]

Problem Solving

Kindergarten

In the rafters of Room Three there are lots of insects and animals that celebrate Halloween. There were 5 spiders, 4 bats, and 5 termites. How many animals are up there in all?

[6, 4, 6] [10, 5, 10] [15, 8, 15]

up there in all?

[6, 4, 6] [10, 5, 10] [15, 8, 15]

$5+5=10+4=\boxed{14}$

[6,4,6]

$6+4=10+6=16$

[15, 8, 15]

15 8 15

10 5 4 4 10 5

10

20 30

38

In the rafters of Room Three there are lots of insects and animals that celebrate Halloween. There were 5 spiders, 4 bats, and 5 termites. How many animals are up there in all?

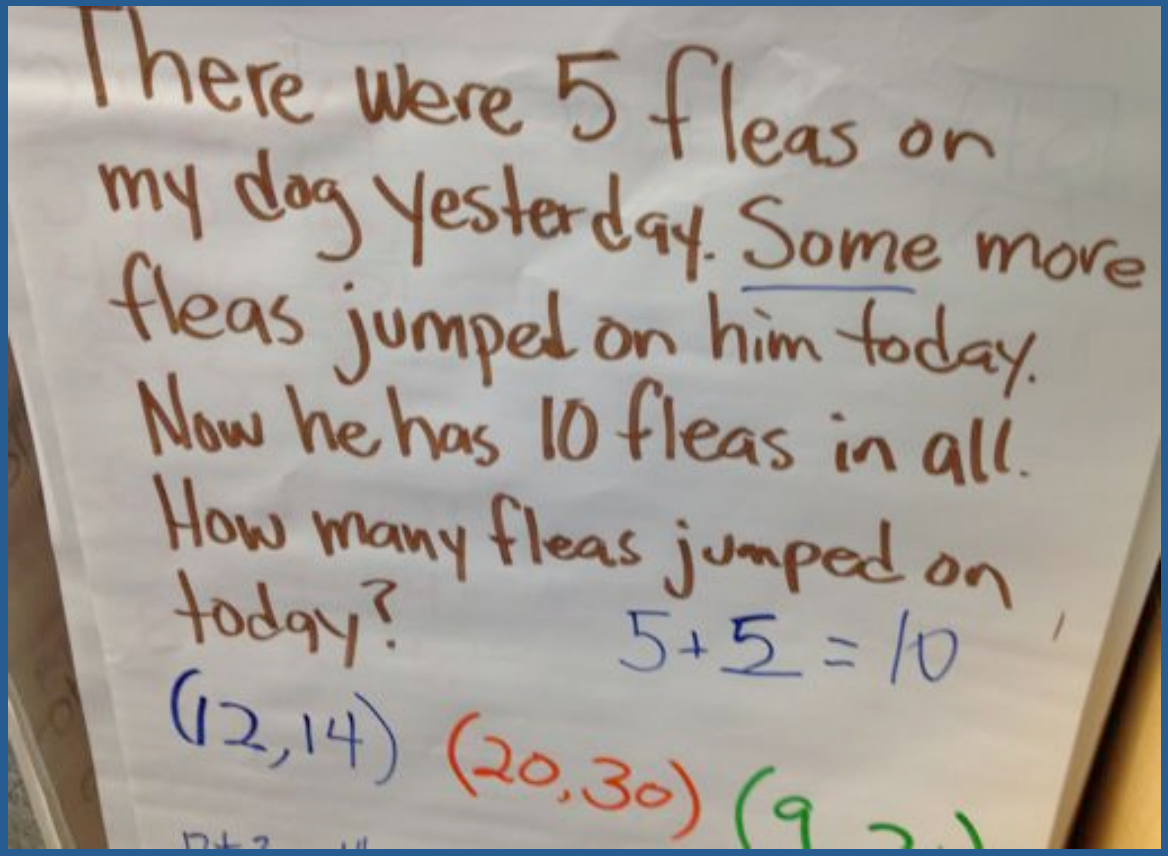
[8, 4, 6] [10, 5, 10] [15, 8, 15]

5+5=10 10+4=14

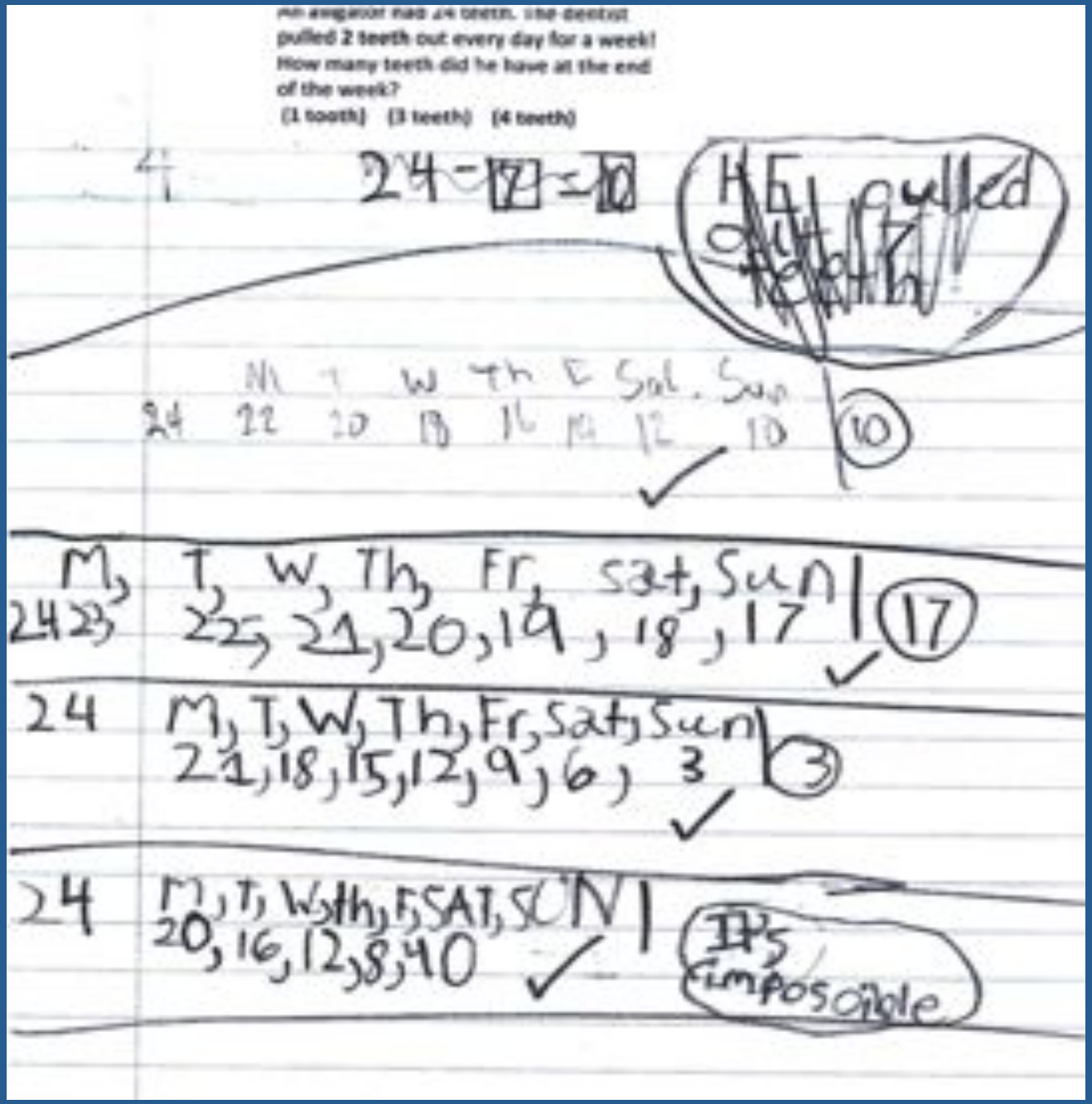
If 5 bats and 5 termites and 4 spiders there will be 14.

Examples of
First Grade Problem Solving

1st Grade Problem Solving

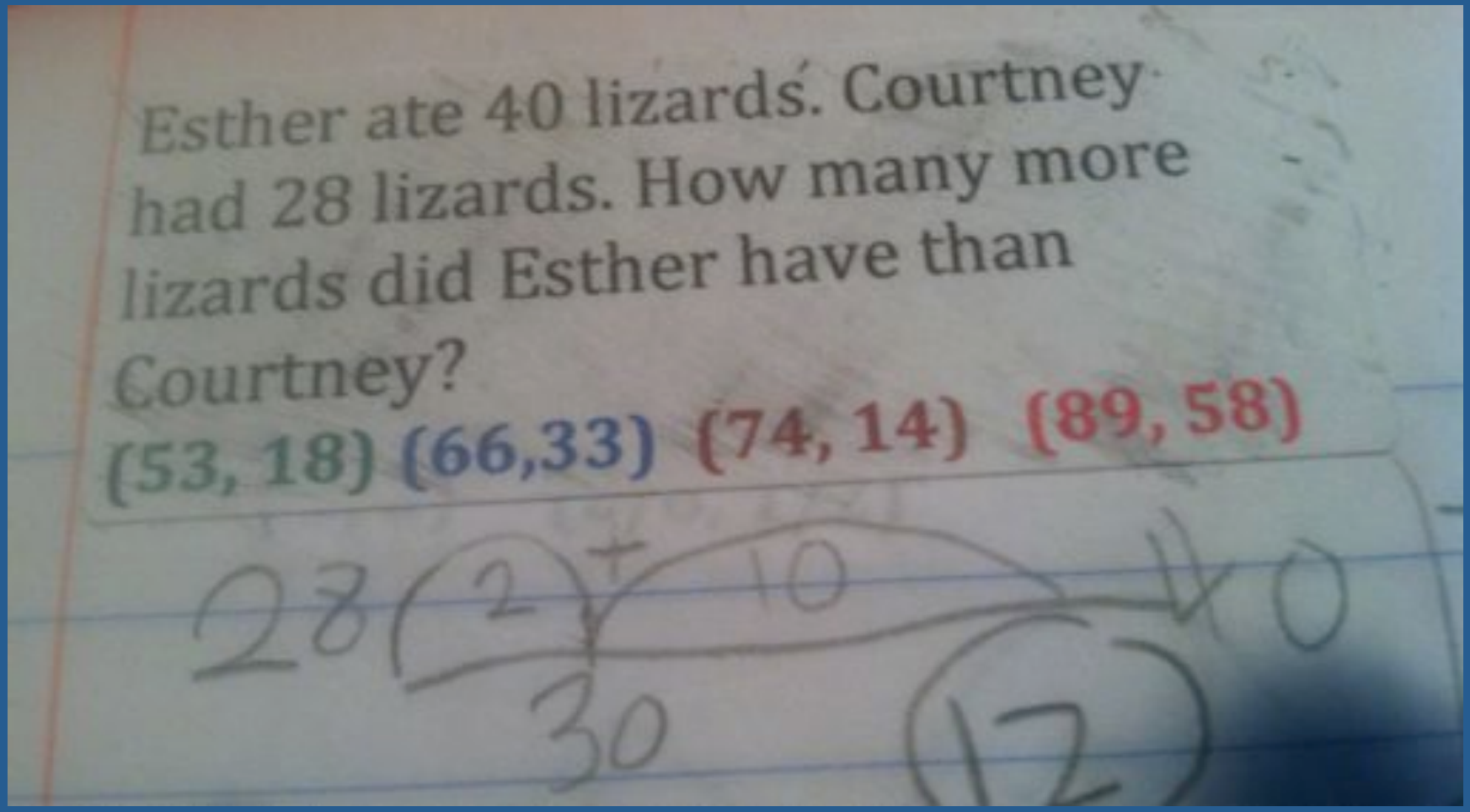


An alligator had 24 teeth. The dentist pulled 2 teeth out every day for a week! How many teeth did he have at the end of the week?
(1 tooth) (3 teeth) (4 teeth)



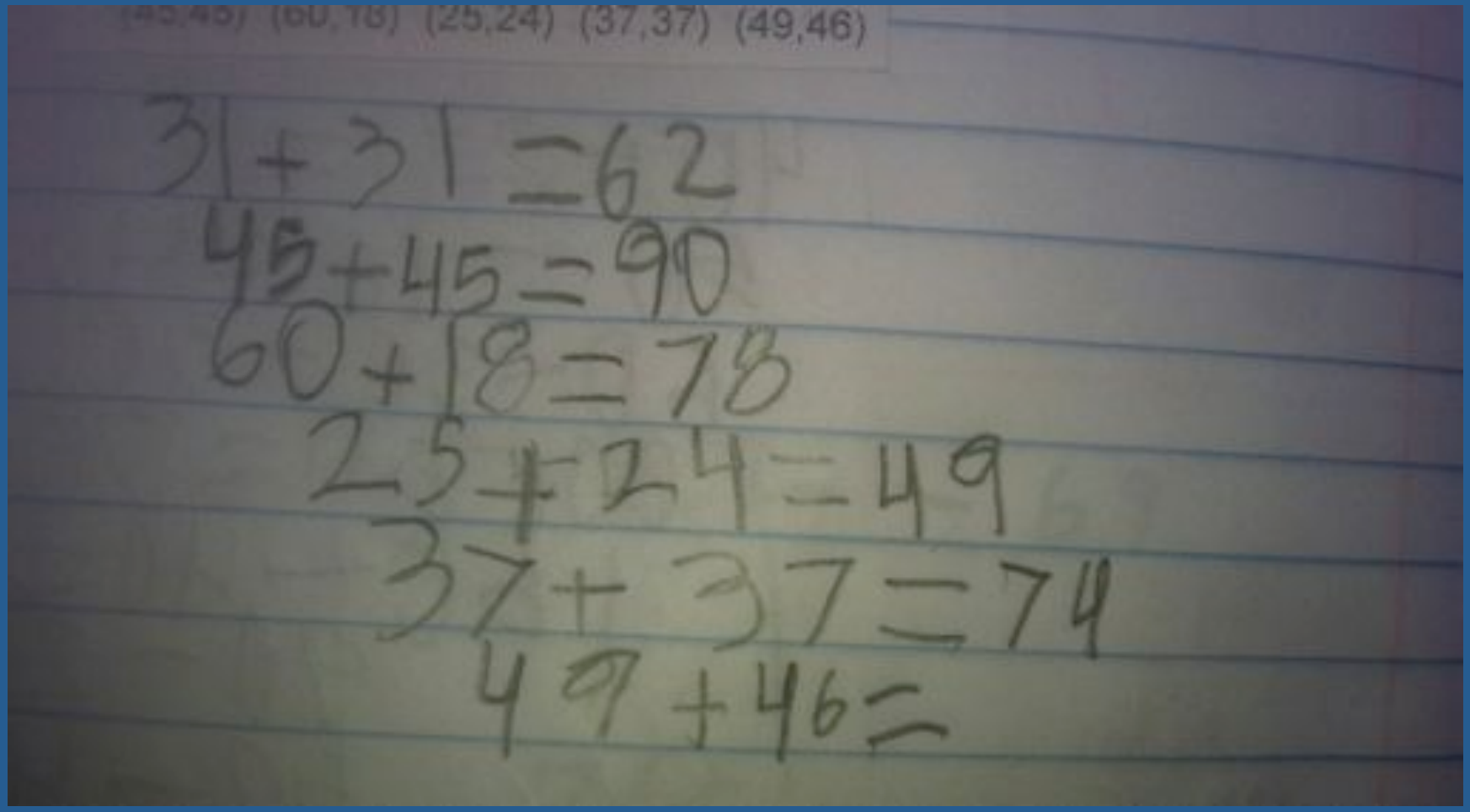
Examples of
Second Grade Problem Solving

Second Grade

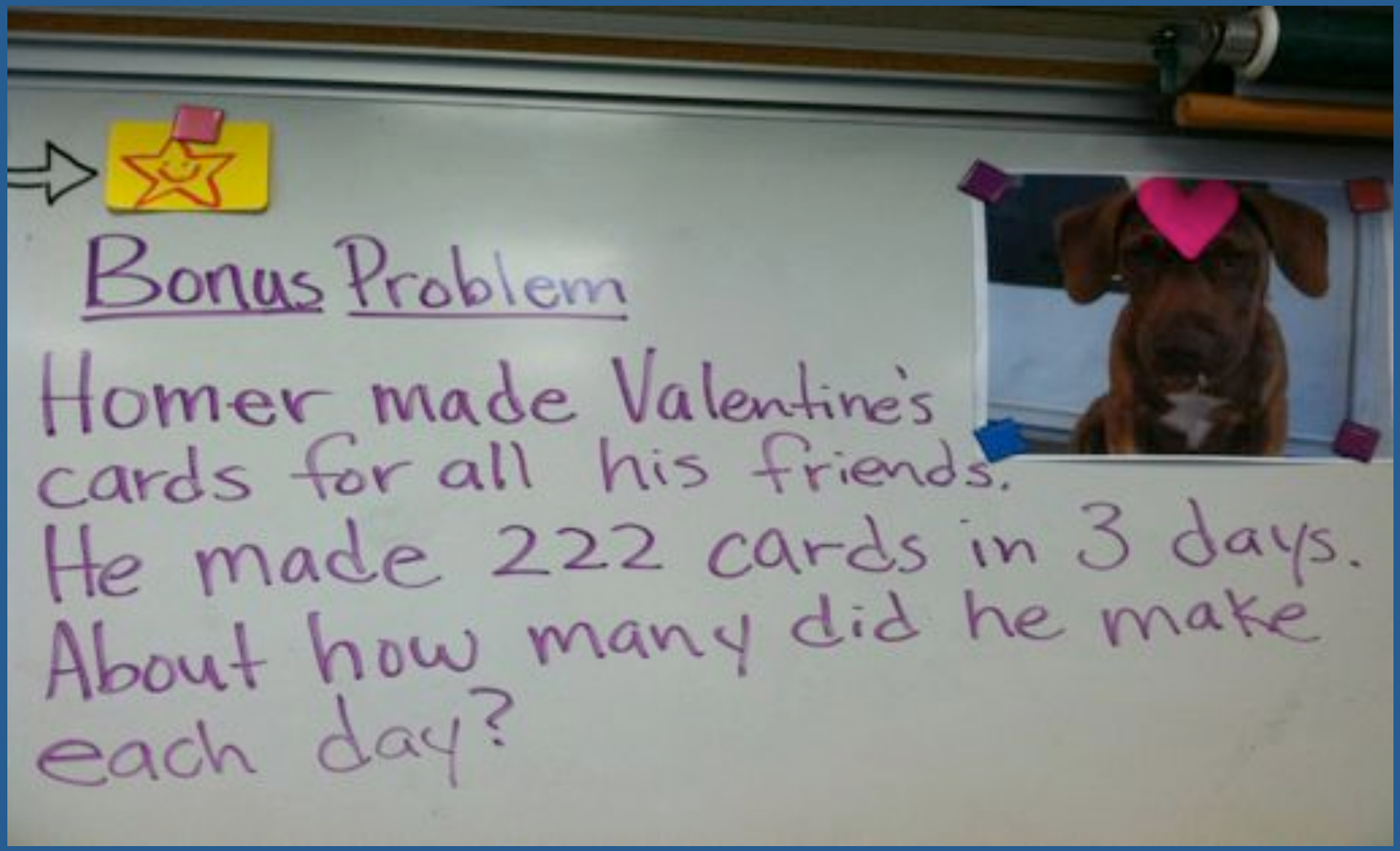


31 turkeys jumped into my car this morning. 31 more jumped in my car this afternoon. How many turkeys did I have altogether?

(45, 45) (60, 18) (25,24) (37,37) (49,46)



Problem Solving



How to help your students at home:

Do's

- Have your child explain how they are thinking about the problem and how they are solving it.
- Let them grapple.
- Ask questions: Can you explain? How did you know? Can you tell me again? Share your thinking too.

Don't's

- Don't rush to the algorithm (carrying and borrowing)
- Don't be in a hurry to increase adding and subtracting huge numbers. Understanding comes from being fluent with numbers under 20 and then numbers under 100.
- If your child is struggling with a concept, lower the number and then raise it back up slowly.