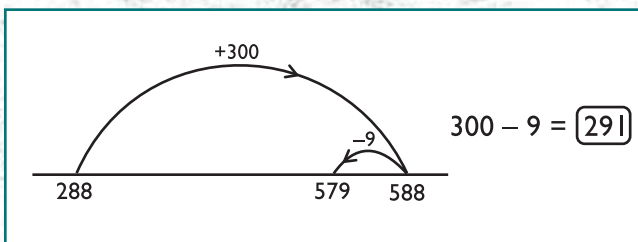# Maths Detective

Activity

Mrs Coey's class have been working on this problem:

> There are 579 children at our school.
> 288 of them are girls. How many are boys?

1. These are the notes that some of the students made while they were solving the problem.
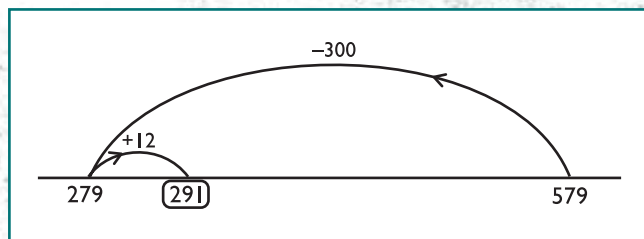Use your detection skills to match each solution up with a student.

a.

$+300$

-9

288   579   588

$300 - 9 = \boxed{291}$

b.

$579 - 200 = 379$

$379 - 80 = 299$

$299 - 8 = \boxed{291}$

c.

$579 - 288$

$+12$ $+12$

$591 - 300 = \boxed{291}$

d.

-300

$+12$

279   $\boxed{291}$ 579

e.

$+279$

$+12$

$= \boxed{291}$

288   300   579

f.
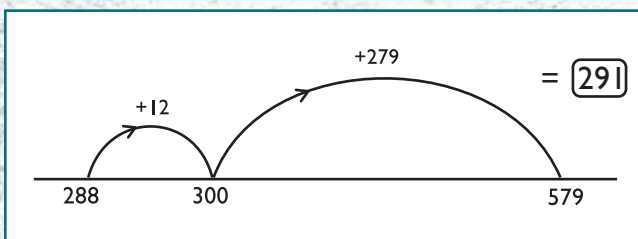
$500 - 200 = 300$

$79 - 88 = {}^-9$

$300 - 9 = \boxed{291}$

Comparing addition and subtraction strategies

I reversed the problem and made it 288 + ☐ = 579. Then I added 12 to 288 to make it 300, which is a tidy number. I could see that I needed 279 more to get to 579. 279 + 12 = 291. My answer is 291.

Ryan

I started off like Ryan did and reversed the problem to make it addition. Then I added 300 on to 288 because 300 is a tidy number, but this gave me too many, so I had to compensate by taking off 9. 300 − 9 = 291

Phala

I took off a tidy number and then compensated. I went "579 take away 300 is 279." I took off too much, so I added 12 back on to the 279, which gave me 291.

Maire

I broke up the 288 using place value. First, I took 200 away from 579, which leaves 379. Then I took 80 away from 379, which is 299. Then I took 8 away from 299, which leaves 291.

Wātene

I went "500 take away 200 is 300, and 79 take away 88 is minus 9." Then I went "300 take away 9 is 291."

Tāne

I adjusted both numbers equally. I added 12 to both of them to make 288 a tidy number that's easier to subtract in my head. When I added 12 to both numbers, the problem became 591 − 300, which is 291.

Kere

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2. What other ways could you solve this problem?

3. Which strategy do you like best? Why? Discuss your reasons with a classmate.

4. a. Solve 711 – 393 using each of the strategies shown in question **1**.
   b. Which strategy do you like best? Why? Discuss your opinion with your classmate.

5. Make up four subtraction problems. Choose numbers that would be best for:

   a. Ryan's strategy

   I reversed the problem to make it addition and then added on.

   b. Phala's strategy or Maire's strategy

   I added on a tidy number and then compensated.

   I subtracted a tidy number and compensated.

   c. Wātene's strategy or Tāne's strategy

   I used place value to break up the number I had to subtract.

   I used place value strategy too, but I kept my tens and ones together.

   d. Kere's strategy

   I added on the same number to both numbers to make the problem easier.

6. Swap problems with a classmate. Use the best strategy to solve each problem, then discuss why you thought the strategies you chose were the best ones.

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Comparing addition and subtraction strategies