

Lesson 10 – Subtract 2-digits from 3-digits

NC Objective:
Add and subtract numbers mentally including a three-digit number and tens

Resources needed:
Differentiated worksheet
Teaching Slides
Number lines

Vocabulary:
Add, subtract, multiple, mental methods, exchanging, patterns, columns, calculations, compare, efficient, backwards, partition

Children subtract multiples of 10 from a 3-digit number, with an exchange. The examples show different ways this concept could be taught using number lines and part-whole models. The column method could be used, however, it is not the most efficient method. Counting backwards in tens or using 100 to help will support mental strategies.

Key Questions:

How many tens do we exchange one hundred for?

How can we partition 70 to subtract it from 240 more efficiently? Show this on the number line.

★ Working Towards

★★ Working Within

★★★ Greater Depth

Teaching slide for 'Working Towards' showing number lines for subtraction problems. The slide includes two examples of counting back in tens on a number line to solve subtraction problems. The first example shows $530 - 70 =$ with a number line from 450 to 550. The second example shows $820 - 40 =$ with a number line from 850 to 870. Below these are several more subtraction problems with blank number lines for students to complete: $520 - 70 =$, $830 - 40 =$, $470 - 90 =$, $230 - 50 =$, and $110 - 20 =$.

Teaching slide for 'Working Within' showing number lines for subtraction problems. The slide includes two examples of counting back in tens on a number line to solve subtraction problems. The first example shows $525 - 70 =$ with a number line from 515 to 525. The second example shows $820 - 40 =$ with a number line from 810 to 820. Below these are several more subtraction problems with blank number lines for students to complete: $975 - 70 =$, $820 - 40 =$, $980 - 40 =$, $230 - 50 =$, and $108 - 20 =$.

Teaching slide for 'Greater Depth' showing word problems and subtraction problems. The slide includes two examples of solving subtraction problems using a number line: $527 - 70 =$ and $324 - 40 =$. Below these are several word problems for students to solve using their preferred method:

- Yellow class has 175 children. Blue class needs to borrow a pencil for every person in their class. They have 40 children. How many pencils are Yellow class left with?
- It is Monday and 642 buses are ready to go from a primary school. There's an error on 80 of the addresses so they just leave the next day. How many were parked out on Monday?
- Blue class have 335 counters. Blue class have some and need to borrow some. Yellow class have 40 children in the class and no blue sticks. They would like each one in the class to have a blue stick so they borrow some from Yellow class. How many are Yellow class left with?
- Blue class have 40 children in the class and no blue sticks. They would like each one in the class to have a blue stick so they borrow some from Yellow class. Yellow class had a whole box of 120. Once Blue class had the gum they made, how many were yellow class left with?
- There are 111 gold stars in the treasure chest. There are 125 gold stars in the treasure chest. There are 125 gold stars in the treasure chest. There are 125 gold stars in the treasure chest. How many bags did he take?
- There are 125 gold stars in the treasure chest. There are 125 gold stars in the treasure chest. There are 125 gold stars in the treasure chest. How many bags did he take?

Children count back in tens using a number lines and 3-digit numbers of which are multiples of tens. E.g. $430 - 50 =$ Number lines are completed with an expectation of children showing jumps of tens and recording the number they have landed at.

Children count back in tens using a number lines and 3-digit numbers of which are multiples of tens. E.g. $436 - 50 =$ Number lines are completed at first and then children progress to counting back and completing their own number line.

Children count back in tens using a number lines and 3-digit numbers of which are multiples of tens. E.g. $436 - 50 =$ Number lines are not completed. There's also an option where children solve complex word problems using multiple of tens.

Reasoning & Problem Solving

Reasoning & Problem Solving worksheet with tasks:

- Complete the missing digits.
 - $14 \square - 80 = 66$
 - $425 - \square = 355$
 - $\square - 8 = 40 = 278$
- Rose thinks the rule for the function machine is subtract 40. Is she correct? Explain why.
- INPUT: 327 → RULE: ? → OUTPUT: 247
- How many different methods can you solve $764 - 90$? Share your method with a partner.

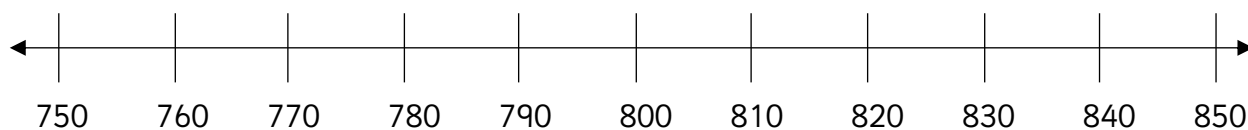
Children continue working on subtracting multiples of 10 from 3-digit numbers by answering reasoning tasks.

Count back in tens on the number line to solve the calculation.

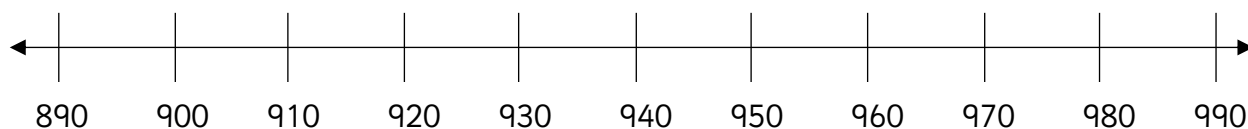
$$520 - 70 = \underline{\hspace{2cm}}$$



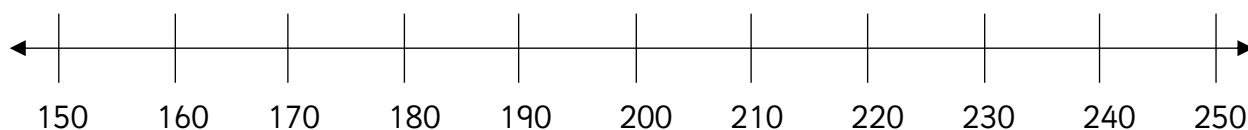
$$830 - 40 = \underline{\hspace{2cm}}$$



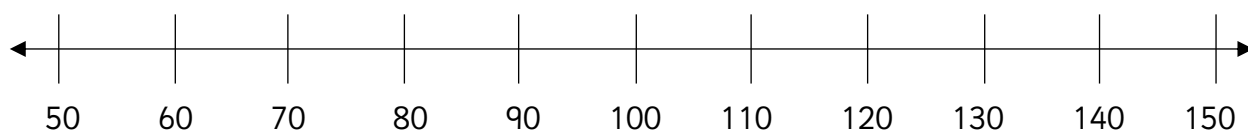
$$980 - 90 = \underline{\hspace{2cm}}$$



$$230 - 50 = \underline{\hspace{2cm}}$$

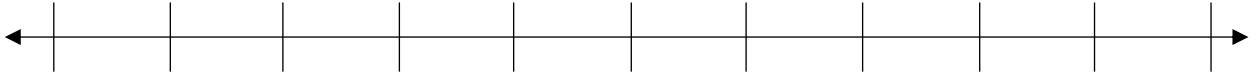


$$110 - 20 = \underline{\hspace{2cm}}$$

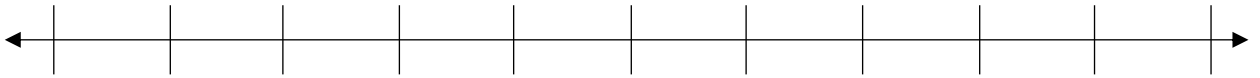


Count back in tens on the number line to solve the calculation.

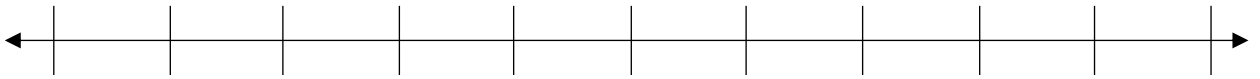
$$520 - 70 = \underline{\hspace{2cm}}$$



$$830 - 40 = \underline{\hspace{2cm}}$$



$$980 - 90 = \underline{\hspace{2cm}}$$



$$230 - 50 = \underline{\hspace{2cm}}$$

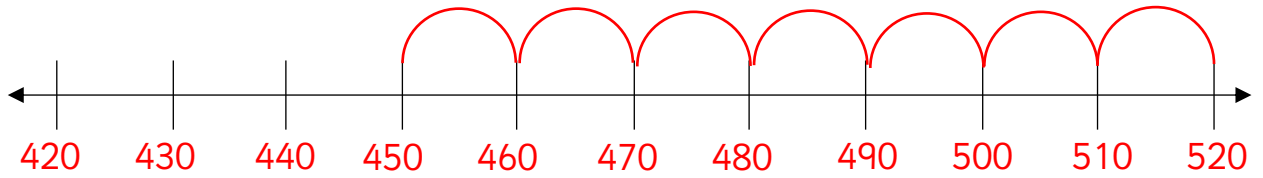


$$110 - 20 = \underline{\hspace{2cm}}$$



Count back in tens on the number line to solve the calculation.

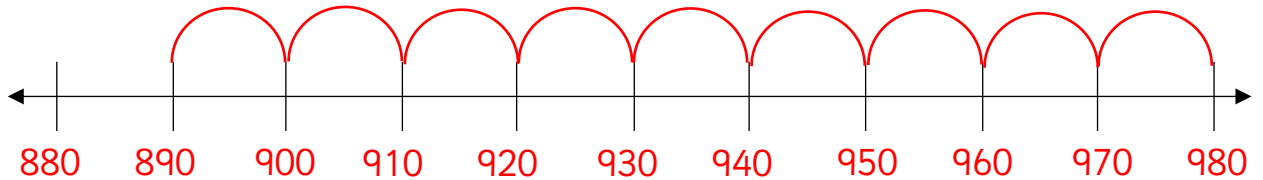
$$520 - 70 = \underline{450}$$



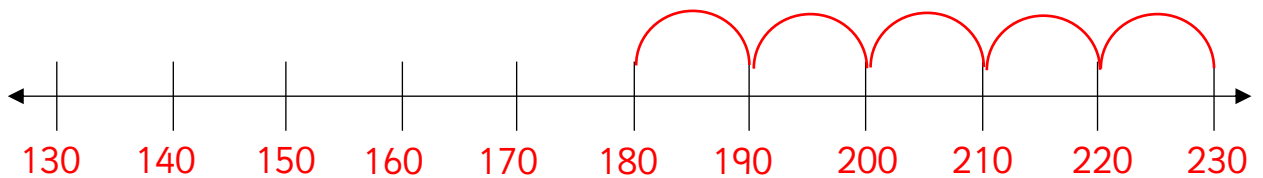
$$830 - 40 = \underline{790}$$



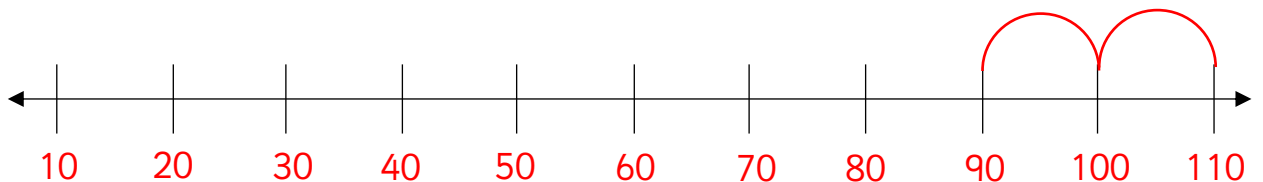
$$980 - 90 = \underline{890}$$



$$230 - 50 = \underline{180}$$



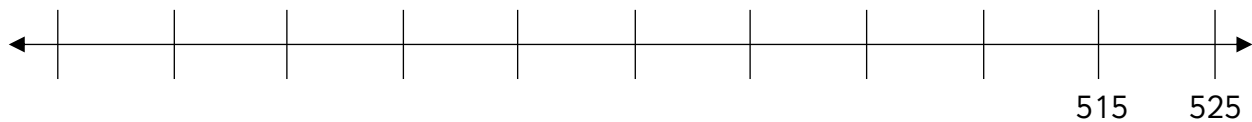
$$110 - 20 = \underline{90}$$



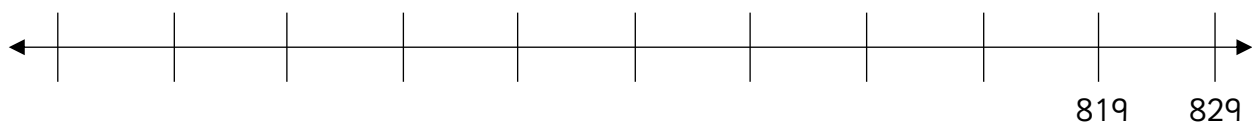


Count back in tens on the number line to solve the calculation.

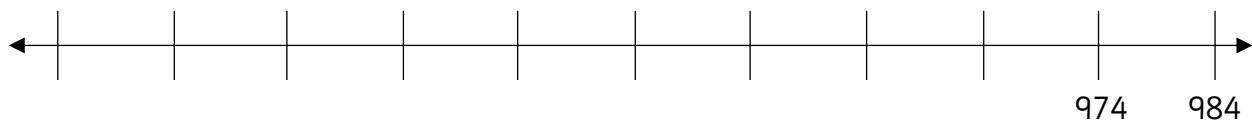
$$525 - 70 = \underline{\hspace{2cm}}$$



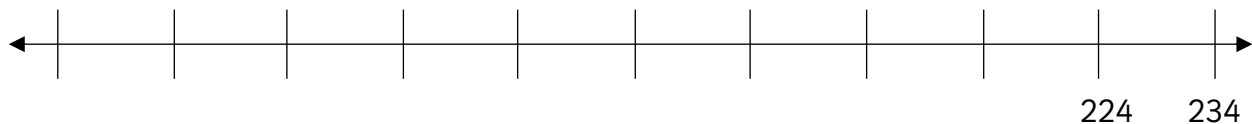
$$829 - 40 = \underline{\hspace{2cm}}$$



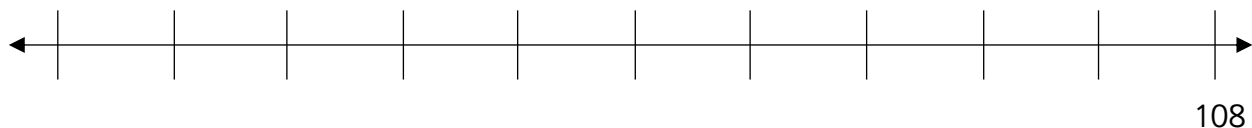
$$984 - 90 = \underline{\hspace{2cm}}$$



$$234 - 50 = \underline{\hspace{2cm}}$$



$$108 - 20 = \underline{\hspace{2cm}}$$





Count back in tens on the number line to solve the calculation.

$$525 - 70 = \underline{\hspace{2cm}}$$



$$829 - 40 = \underline{\hspace{2cm}}$$



$$984 - 90 = \underline{\hspace{2cm}}$$



$$234 - 50 = \underline{\hspace{2cm}}$$



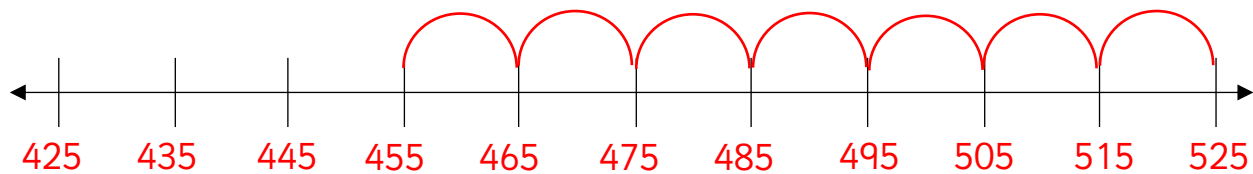
$$108 - 20 = \underline{\hspace{2cm}}$$





Count back in tens on the number line to solve the calculation.

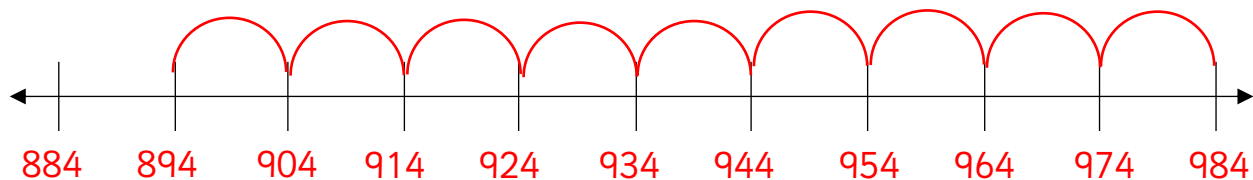
$$525 - 70 = \underline{455}$$



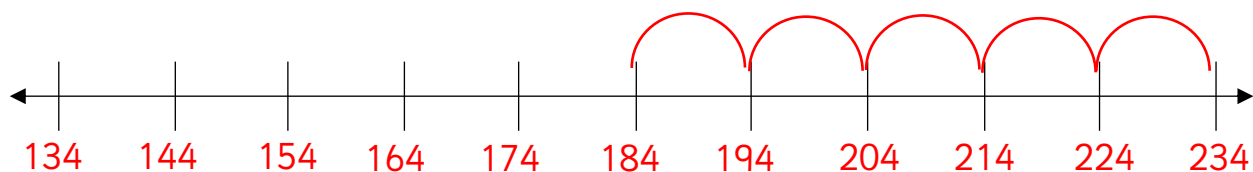
$$829 - 40 = \underline{789}$$



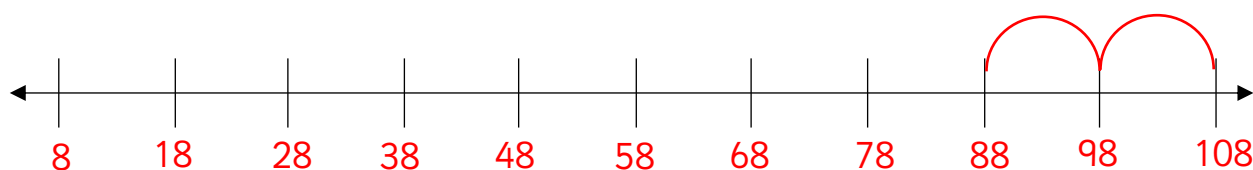
$$984 - 90 = \underline{894}$$



$$234 - 50 = \underline{184}$$



$$108 - 20 = \underline{88}$$





Solve the calculations using the number line.

$$527 - 70 = \underline{\hspace{2cm}}$$



$$324 - 40 = \underline{\hspace{2cm}}$$



$$908 - 90 = \underline{\hspace{2cm}}$$



$$236 - 50 = \underline{\hspace{2cm}}$$



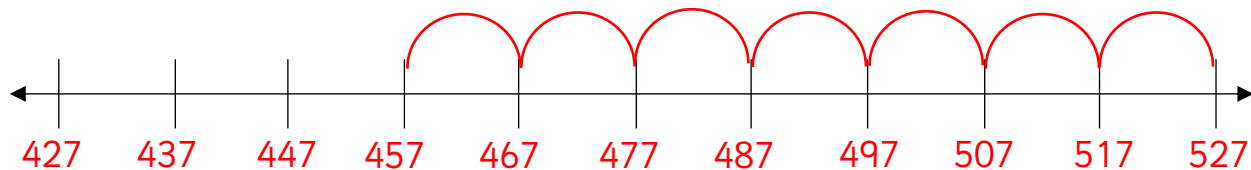
$$417 - 20 = \underline{\hspace{2cm}}$$





Solve the calculations using the number line.

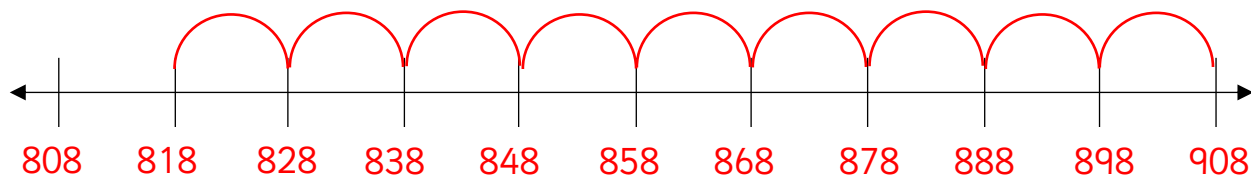
$$527 - 70 = \underline{457}$$



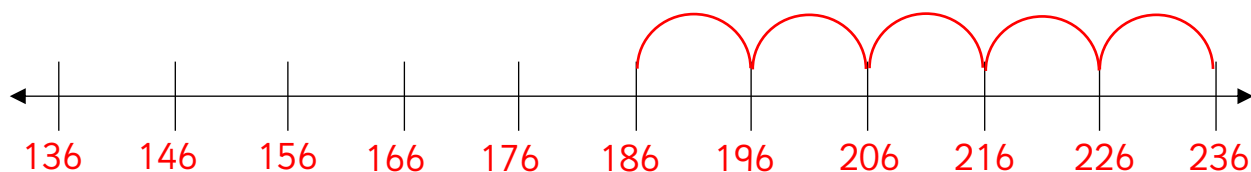
$$324 - 40 = \underline{284}$$



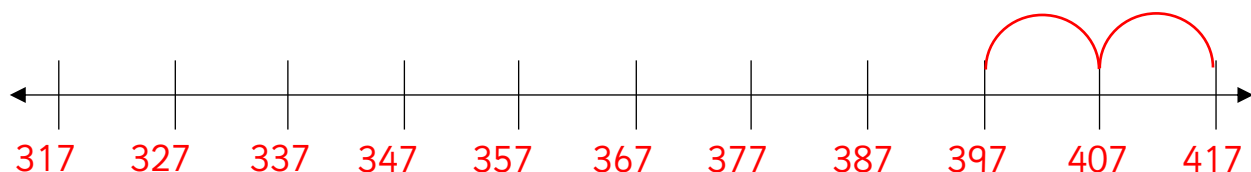
$$908 - 90 = \underline{818}$$



$$236 - 50 = \underline{186}$$



$$417 - 20 = \underline{397}$$





Solve the word problems using your preferred method.

Yellow class have 119 colouring pencils.
Blue class need to borrow a pencil for each
person in their class.

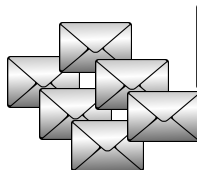
They have 40 children. How many pencils
are Yellow class left with?





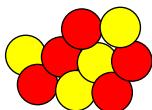
It is Monday and 647 letters are ready to
post from a primary school. There's an error
on 50 of the addresses so they post these
the next day.

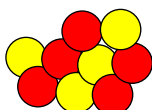
How many are posted out on Monday?



Yellow class have 335 counters. Blue class
have none and need to borrow some.

Blue class now have 295 counters.
How many are Yellow class left with?





Blue class have 40 children in the class and
no glue sticks. They would like each pair in
the class to share a glue stick so they
borrow some from Yellow class.

Yellow class had a whole box of 104! Once
Blue class took the glues they needed, how
many were yellow class left with?



There are 413 gold coins in the treasure chest.
Pirate Joe takes bags of 10 coins and there are
now 343 coins in chest.
How many bags did he take?



There are 935 gold coins in the treasure chest.
Pirate Joe takes bags of 70 coins and there are
now 865 coins in chest.
How many bags did he take?





Solve the word problems using your preferred method.

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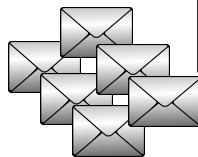


79



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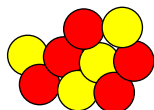
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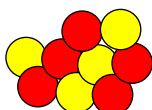
597

Yellow class have 335 counters. Blue class
have none and need to borrow some.

Blue class now have 295 counters.
How many are Yellow class left with?



40



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84



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5



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1



Complete the missing digits.

$$14 \square - 80 = 66$$

$$425 - \square 0 = 355$$

$$3 \square 8 - 40 = 278$$

How many different methods can you solve
 $764 - 90$?

Share your method with a partner.

Rosie thinks the rule for the function machine is subtract 40.

Is she correct?

Explain why.

INPUT

RULE

OUTPUT



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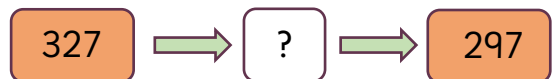
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Explain why.

INPUT

RULE

OUTPUT



Complete the missing digits.

$$14 \boxed{6} - 80 = 66$$

$$425 - \boxed{7}0 = 355$$

$$3 \boxed{1}8 - 40 = 278$$

How many different methods can you solve $764 - 90$?

Share your method with a partner.

Possible methods:

1. $764 - 100 = 664$, $664 + 10 = 674$

2. $90 = 64$ and 26 ,

$764 - 64 = 700$, $700 - 26 = 674$

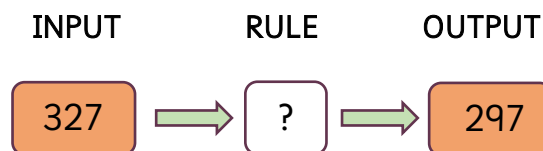
3. $764 - 60 = 704$, $704 - 30 = 674$

Expanded or formal written methods.

Rosie thinks the rule for the function machine is subtract 40.

Is she correct?

Explain why.



She is wrong because 327 subtract 40 is 287 .
The rule is subtract 30 .

Complete the missing digits.

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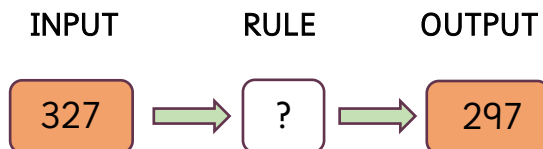
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