

Lesson 8— Inverse Operations

NC Objective:

Add and subtract whole numbers with more than 4 digits, including using formal written methods. Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy

Resources needed:

Differentiated Worksheets
Teaching Slides

Vocabulary:

Inverse operations, accurate, accuracy, Add and subtract numbers

Children will use their knowledge of addition and subtraction to check their working out to ensure accuracy. They use the commutative law to see that addition can be done in any order but subtraction cannot.

Key Questions:

- How can you tell if your answer is sensible?
- What is the inverse of addition?
- What is the inverse of subtraction?

★ Working Towards

★★ Working Within

★★★ Greater Depth

<p>When calculating 12,455 + 9,546, which answer gives the correct and corresponding addition question?</p> <p>8,540 + 3,815 = 12,355 8,540 + 3,143 = 17,455 3,915 + 8,540 = 17,455</p>	<p>When calculating 23,545 + 9,843, which answer gives the correct and corresponding addition question?</p> <p>13,715 + 9,845 = 23,540 9,845 + 13,875 = 23,540 9,845 + 13,675 = 23,540</p>
<p>When calculating 18,540 + 7,485, which answer gives the correct and corresponding addition question?</p> <p>7,485 + 9,155 = 16,540 7,485 + 9,085 = 16,540 9,205 + 7,485 = 16,540</p>	<p>When calculating 37,983 + 17,495, which answer gives the correct and corresponding addition question?</p> <p>17,430 + 19,335 = 37,985 20,635 + 17,450 = 37,985 17,450 + 20,525 = 37,985</p>
<p>I'm thinking of a number. After I add 3,250 my number is 7,840. What was my original number?</p>	<p>I'm thinking of a number. After I subtract 6,380 my number is 5,355. What was my original number?</p>
<p>Rose and Malachi are playing a computer game. Rose's high score is 7,550. Malachi's high score is greater than Rose's. The total of both their scores is 19,640. What is Malachi's high score?</p>	<p>Tia and Zach were training in the pool. Tia swam 3,550 metres. Zach swam more than Tia. The total of both swims is 9,640 metres. How many did Zach swim?</p>

<p>When calculating 23,341 + 9,357, which answer gives the correct and corresponding addition question?</p> <p>9,357 + 14,814 = 23,541 9,357 + 14,184 = 23,541 14,284 + 9,357 = 23,541</p>	<p>When calculating 32,887 + 21,982, which answer gives the correct and corresponding addition question?</p> <p>27,982 + 4,505 = 32,487 4,607 + 27,978 = 32,487 27,982 + 4,705 = 32,487</p>
<p>When calculating 51,578 + 35,857, which answer gives the correct and corresponding addition question?</p> <p>15,722 + 35,857 = 51,574 35,857 + 15,702 = 51,574 35,857 + 15,820 = 51,574</p>	<p>When calculating 47,978 + 29,383, which answer gives the correct and corresponding addition question?</p> <p>29,383 + 18,575 = 47,978 29,383 + 18,595 = 47,978 18,605 + 29,383 = 47,978</p>
<p>I'm thinking of a number. After I add 5,250 and subtract 924 my number is 9,845. What was my original number?</p>	<p>I'm thinking of a number. After I add 7,978 and subtract 2,580 my number is 1,114. What was my original number?</p>
<p>Rose and Malachi are playing a computer game. Rose's high score is 18,637. Malachi's high score is greater than Rose's. The total of both their scores is 43,574. What is Malachi's high score?</p>	<p>Tia and Zach were training in the pool. Tia swam 5,672 metres. Zach swam more than Tia. The total of both swims is 12,847 metres. How many did Zach swim?</p>

<p>When calculating 55,101 + 12,344 + 54,885, which answer gives the correct and corresponding addition and subtraction question?</p> <p>22,571 + 54,885 = 12,344 + 65,107 54,885 + 12,344 = 2,127 + 65,107 54,885 = 12,429 + 22,661 + 65,107</p>	<p>When calculating 84,028 + 38,444 + 10,003, which answer gives the correct and corresponding addition and subtraction question?</p> <p>37,375 + 36,496 = 10,003 + 84,068 110,734 + 10,003 = 36,649 + 84,028 57,402 = 10,002 + 36,619 + 84,068</p>
<p>When calculating 32,567 + 11,648 + 22,989, which answer gives the correct and corresponding addition and subtraction question?</p> <p>21,264 + 22,989 = 11,686 + 32,567 21,237 + 22,998 = 11,668 + 32,567 21,246 = 11,658 + 22,989 + 32,567</p>	<p>When calculating 63,900 + 45,008 + 12,070, which answer gives the correct and corresponding addition and subtraction question?</p> <p>30,890 = 12,070 + 45,080 = 63,900 30,942 = 12,070 + 45,008 = 63,900 30,800 = 12,700 + 45,800 = 63,900</p>
<p>I'm thinking of a number. After I add 6,102, subtract 1,248 and then again add 33,456 my number is 56,800. What was my original number?</p>	
<p>I'm thinking of a number. After I subtract 15,804, add 7,807 and then again subtract 12,348 my number is 46,000. What was my original number?</p>	

Children on this sheet will choose the correct inverse to the given calculation and solve one-step word problems.

Children on this sheet will choose the correct inverse to the given calculation and solve two-step word problems.

Children on this sheet will choose the correct inverse to the given calculations and solve multi-step word problems.

Reasoning & Problem Solving

Complete the pyramid using addition and subtraction.

78,348
41,708
21,124
8,592
3,124

Zach, Rose, Malachi and Tia collect marbles.

- Zach: I have 2,354 marbles.
- Rose: I have double the amount of marbles Zach has.
- Malachi: I have half the amount of marbles Zach has.

In total they have 10,384 marbles. How many does Tia have?

Children continue working on inverse operations.

They will complete the pyramid and solve a reasoning question about unknown numbers using inverse operations.



When calculating $12,455 - 8,540$, which answer gives the correct and corresponding addition question?

$$8,540 + 3,815 = 12,255$$

$$8,540 + 3,195 = 12,455$$

$$3,915 + 8,540 = 12,455$$

When calculating $23,560 - 9,845$, which answer gives the correct and corresponding addition question?

$$13,715 + 9,845 = 23,560$$

$$9,845 + 13,825 = 23,560$$

$$9,845 + 13,625 = 23,560$$

When calculating $16,540 - 7,485$, which answer gives the correct and corresponding addition question?

$$7,485 + 9,155 = 16,540$$

$$7,485 + 9,055 = 16,540$$

$$9,205 + 7,485 = 16,540$$

When calculating $37,985 - 17,450$, which answer gives the correct and corresponding addition question?

$$17,450 + 19,535 = 37,985$$

$$20,635 + 17,450 = 37,985$$

$$17,450 + 20,535 = 37,985$$

I'm thinking of a number.
After I add 3,250
my number is 7,860.
What was my original number?



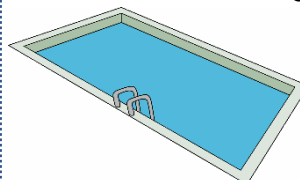
I'm thinking of a number.
After I subtract 6,580
my number is 5,555.
What was my original number?



Rosie and Malachi are playing a computer game.
Rosie's high score is 7,550.
Malachi's high score is greater than Rosie's.
The total of both their scores is 19,640.
What is Malachi's high score?



Tia and Zach were training in the pool.
Tia swam 3,550 metres.
Zach swam more than Tia.
The total of both swims is 9,640 metres.
How many did Zach swim?





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4,610

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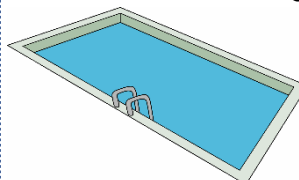
12,135

Rosie and Malachi are playing a computer game.
Rosie's high score is 7,550.
Malachi's high score is greater than Rosie's.
The total of both their scores is 19,640.
What is Malachi's high score?

12,090



Tia and Zach were training in the pool.
Tia swam 3,550 metres.
Zach swam more than Tia.
The total of both swims is 9,640 metres.
How many did Zach swim?



6,090



When calculating $23,541 - 9,357$, which answer gives the correct and corresponding addition question?

$$9,357 + 14,814 = 23,541$$

$$9,357 + 14,184 = 23,541$$

$$14,284 + 9,357 = 23,541$$

When calculating $32,687 - 27,982$, which answer gives the correct and corresponding addition question?

$$27,982 + 4,505 = 32,687$$

$$4,607 + 27,978 = 32,687$$

$$27,982 + 4,705 = 32,687$$

When calculating $51,579 - 35,857$, which answer gives the correct and corresponding addition question?

$$15,722 + 35,857 = 51,579$$

$$35,857 + 15,702 = 51,579$$

$$35,857 + 15,820 = 51,579$$

When calculating $47,978 - 29,383$, which answer gives the correct and corresponding addition question?

$$29,383 + 18,575 = 47,978$$

$$29,383 + 18,595 = 47,978$$

$$18,605 + 29,383 = 47,978$$

I'm thinking of a number.
After I add 5,357 and subtract
924 my number is 9,845.
What was my original number?



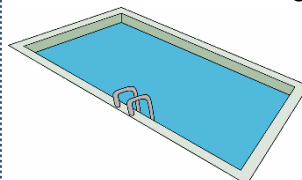
I'm thinking of a number.
After I add 7,698 and subtract
2,587 my number is 9,119.
What was my original number?



Rosie and Malachi are playing a computer game.
Rosie's high score is 18,657.
Malachi's high score is greater than Rosie's.
The total of both their scores is 43,574.
What is Malachi's high score?



Tia and Zach were training in the pool.
Tia swam 5,672 metres.
Zach swam more than Tia.
The total of both swims is 12,847 metres.
How many did Zach swim?





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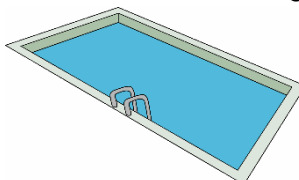
4,008

Rosie and Malachi are playing a computer game.
Rosie's high score is 18,657.
Malachi's high score is greater than Rosie's.
The total of both their scores is 43,574.
What is Malachi's high score?

24,917



Tia and Zach were training in the pool.
Tia swam 5,672 metres.
Zach swam more than Tia.
The total of both swims is 12,847 metres.
How many did Zach swim?



7,175



When calculating $65,107 + 12,349 - 54,885$, which answer gives the correct and corresponding addition and subtraction question?

$$22,571 + 54,885 - 12,349 = 65,107$$

$$54,885 + 12,349 - 2,127 = 65,107$$

$$54,885 - 12,439 + 22,661 = 65,107$$

When calculating $84,068 - 36,669 + 10,003$, which answer gives the correct and corresponding addition and subtraction question?

$$57,375 + 36,696 - 10,003 = 84,068$$

$$110,734 + 10,003 - 36,669 = 84,068$$

$$57,402 - 10,003 + 36,669 = 84,068$$

When calculating $32,567 + 11,668 - 22,989$, which answer gives the correct and corresponding addition and subtraction question?

$$21,264 + 22,989 - 11,686 = 32,567$$

$$21,237 + 22,998 - 11,668 = 32,567$$

$$21,246 - 11,668 + 22,989 = 32,567$$

When calculating $63,900 - 45,008 + 12,070$, which answer gives the correct and corresponding addition and subtraction question?

$$30,890 - 12,070 + 45,080 = 63,900$$

$$30,962 - 12,070 + 45,008 = 63,900$$

$$30,800 - 12,700 + 45,800 = 63,900$$



I'm thinking of a number.
After I add 6,102, subtract 1,248 and then again add 33,456
my number is 54,800.
What was my original number?

I'm thinking of a number.
After I subtract 15,809, add 7,807 and then again subtract 12,348
my number is 46,090.
What was my original number?





When calculating $65,107 + 12,349 - 54,885$, which answer gives the correct and corresponding addition and subtraction question?

$$22,571 + 54,885 - 12,349 = 65,107$$

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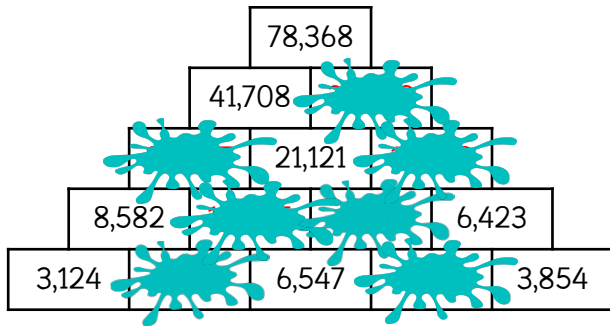
16,490

I'm thinking of a number.
After I subtract 15,809, add 7,807 and then again subtract 12,348
my number is 46,090.
What was my original number?

66,440



Complete the pyramid using addition and subtraction.



Zach, Rosie, Malachi and Tia collect marbles.



Zach

I have 2,354 marbles.



Rosie

I have double the amount of marbles Zach has.

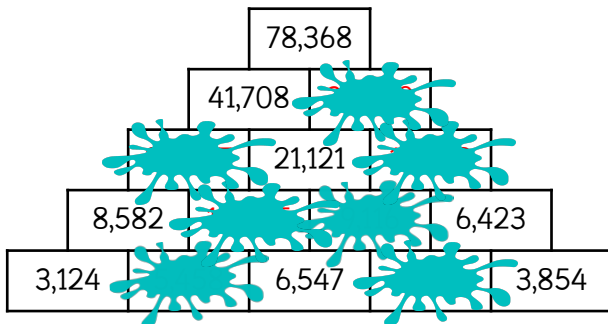


Malachi

I have half the amount of marbles Zach has.

In total they have 10,384 marbles.
How many does Tia have?

Complete the pyramid using addition and subtraction.



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Zach

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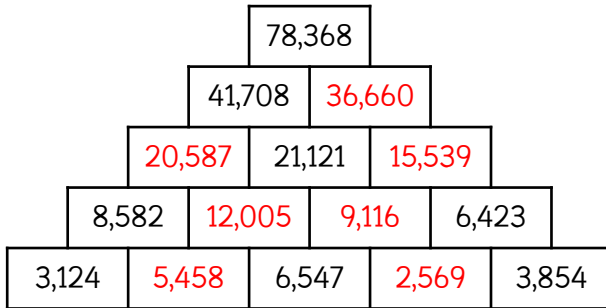


Malachi

I have half the amount of marbles Zach has.

In total they have 10,384 marbles.
How many does Tia have?

Complete the pyramid using addition and subtraction.



From left to right:
 Bottom row: 5,458 and 2,569.
 Second row: 12,005 and 9,116.
 Third row: 20,587 and 15,539.
 Fourth row: 36,660.

Zach, Rosie, Malachi and Tia collect marbles.



Zach

I have 2,354 marbles.



Rosie

I have double the amount of marbles Zach has.



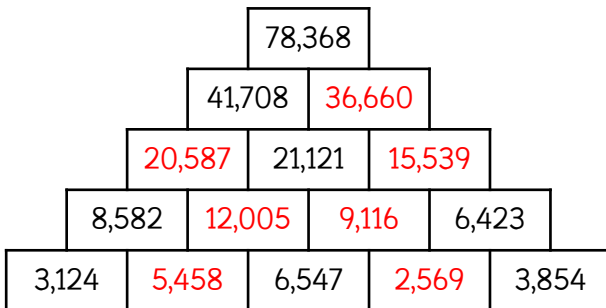
Malachi

I have half the amount of marbles Zach has.

In total they have 10,384 marbles.
How many does Tia have?

Tia has 2,145 marbles.

Complete the pyramid using addition and subtraction.



From left to right:
 Bottom row: 5,458 and 2,569.
 Second row: 12,005 and 9,116.
 Third row: 20,587 and 15,539.
 Fourth row: 36,660.

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Tia has 2,145 marbles.