

# Add Two 2-Digit Numbers, Not Crossing Ten

## Adult Guidance with Question Prompts



Children add two 2-digit numbers, not crossing ten. They build fluency by adding pairs of two-digit numbers. Children have been introduced to using empty number lines and using known number facts to solve addition calculations. They would also benefit from using equipment representing tens and ones to support their learning.

How can you use the number line to find the total?

How many steps of ten will you take?

What is ten more than 25? What is ten more than 35? How many ones will you add? Show this on the number line.

What can you do to check your answer? Show me. (Children could use number facts supported with representations of tens and ones if required.)

Can you complete the addition calculation for Ben?

Repeat for Amia and Ben's scores.

What does the first calculation say?

What number facts can you use to help?

What does the second calculation say?


What number facts can you use to help?

# Add Two 2-Digit Numbers, Not Crossing Ten




The friends played 2 games each.

What did they each score in total?

 Ben


$25 + 22 = \square$

Number line: 25, 35, 45,  $\square$ . Steps: +10, +10, +2.

 Amia

$36 + 23 = \square$

Number line: 36,  $\square$ ,  $\square$ ,  $\square$ . Steps: +10, +10, +3.

 Phil

$45 + 34 = \square$

Number line: 45,  $\square$ ,  $\square$ ,  $\square$ ,  $\square$ . Steps:  $\square$ ,  $\square$ ,  $\square$ ,  $\square$ .

Now, use your number facts to solve these calculations:

$51 + 26 = \square$

$63 + 34 = \square$

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Children investigate adding two 2-digit numbers, not crossing ten. They demonstrate their reasoning skills as they check two children's work. They demonstrate how to apply the strategies correctly.

Is this a number fact that you know?

Did it help Phil find the total? What does he need to remember?

Can you show him?

What is the correct total?

What can you tell me about Amia's calculation?

Is she correct? Is this the most efficient method? How could she be more efficient?

Show me.

Make some 2-digit number cards using numerals 1 to 5. Add them together. Can a friend check you are correct?

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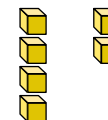
I used number facts.

24

22

Phil

I know  $4 + 2 = 6$ , so  $24 + 22 = 26$ .



Do you agree with Phil? Prove it.

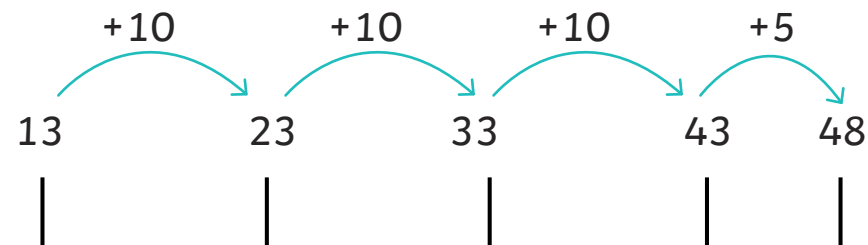


I used an empty number line.

35

13

Amia



Do you agree with Amia? Prove it.

## Add Two 2-Digit Numbers, Not Crossing Ten

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Children add two 2-digit numbers, not crossing ten. They apply their problem-solving skills by investigating all possibilities challenge. The children add pairs of two-digit numbers to reach the same total. They follow clues to narrow down possibilities and explain the similarities that they discover between groups of answers.

How many points did each child score?

How many score cards does each child need? How many digits are on each card?

What does Ben tell us about his cards? Could 32 be one of the numbers? Can you explain why not? What can you do to make sure you have found all of the possibilities?

What does Amia tell us about her cards? Could 34 be one of the numbers? Can you explain why? What can you do to make sure you have found all of the possibilities?

What does Phil tell us about his cards? Could 34 be one of the numbers? Can you explain why? What can you do to make sure you have found all of the possibilities?

Are there more ways to make 49 by adding two 2-digit numbers? What can you do to find out?

## Add Two 2-Digit Numbers, Not Crossing Ten



Three friends played 2 games.

They scored 49 points each.

Each card is a 2-digit number.

$$\boxed{?} + \boxed{?} = 49$$

What could they be?

How many possibilities can you find?



Both of my numbers have two tens.

Ben



One of my numbers is 35 or higher.

Amia



One of my numbers is 14 or lower.

Phil

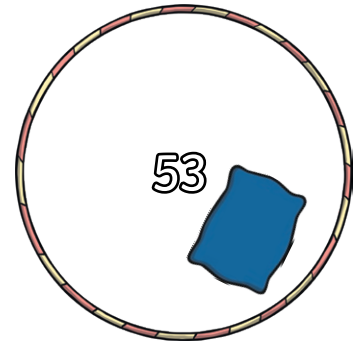
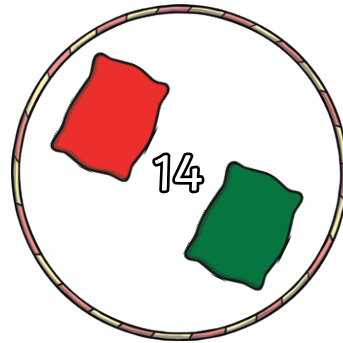
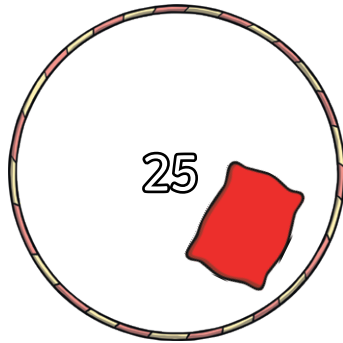
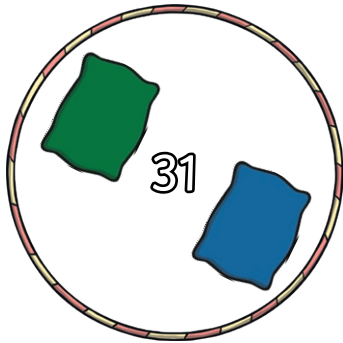
Are there more ways to make 49 by adding two 2-digit numbers?

# Scoring Points

To add two 2-digit numbers by adding the ones (not crossing 10) and the tens.



Each friend threw 2 beanbags into the hoops. What are their scores? Use number facts or number lines to help you.



Amia

I threw the red beanbags.



Phil

I threw the green beanbags.



Ben

I threw the blue beanbags.

How many different scores could you make by throwing 2 beanbags into different hoops?

# Score Points **Answers**

Aima:  $25 + 14 = 39$

Phil:  $31 + 14 = 45$

Ben:  $53 + 31 = 84$

Possible scores:

$31 + 25 = 56$

$31 + 14 = 45$

$31 + 53 = 84$

$25 + 14 = 39$

$25 + 53 = 78$

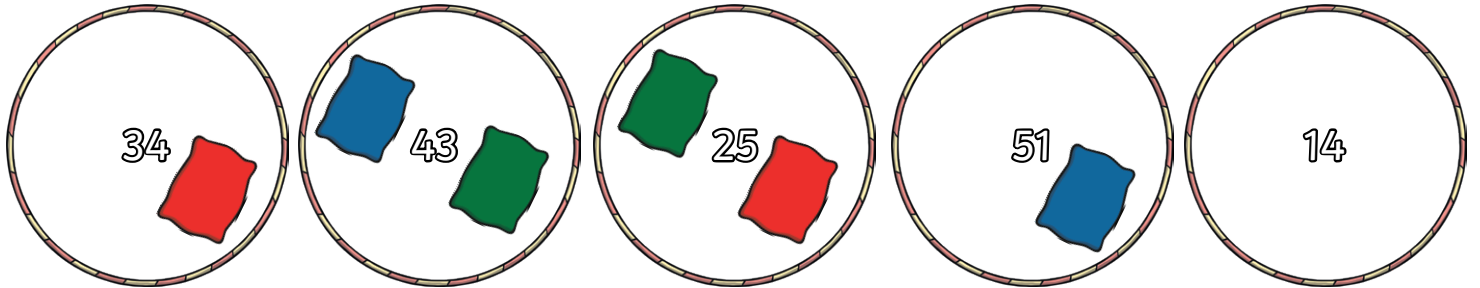
$14 + 53 = 67$

# Scoring Points

To add two 2-digit numbers by adding the ones (not crossing 10) and the tens.

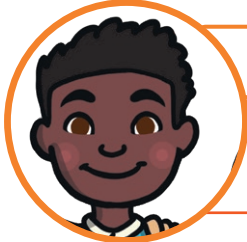


Each friend threw 2 beanbags into 2 different hoops. They each got different scores. What are their scores? Use number facts or number lines to help you.



Phil

I threw the red beanbags.



Ben

I threw the green beanbags.



Amia

I threw the blue beanbags.

How many different scores could you make by throwing 2 beanbags in different hoops? Can you order the totals from the lowest to the highest total?

# Score Points **Answers**

Phil:  $34 + 25 = 59$

Ben:  $43 + 25 = 68$

Aima:  $51 + 43 = 94$

Possible scores from two beanbags in two hoops from the lowest value to the highest:

$25 + 14 = 39$

$34 + 14 = 48$

$43 + 14 = 57$

$34 + 25 = 59$

$51 + 14 = 65$

$43 + 25 = 68$

$25 + 51 = 76$

$34 + 43 = 77$

$34 + 51 = 85$

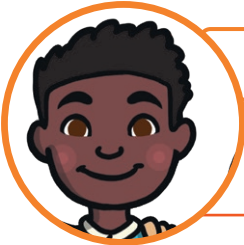
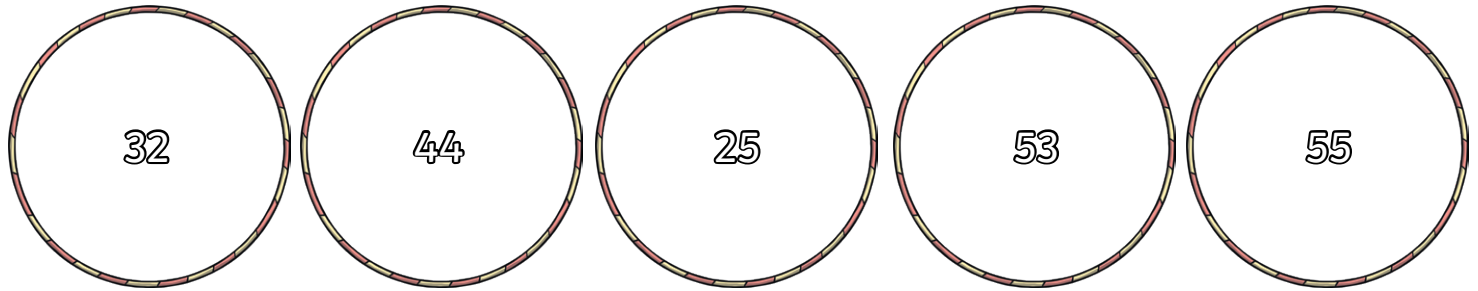
$43 + 51 = 94$

# Scoring Points

To add two 2-digit numbers by adding the ones (not crossing 10) and the tens.



Each friend threw 2 beanbags into 2 different hoops. They each got different scores. Can you work out where their beanbags landed? Use number facts or number lines to help you.



Ben

I scored 97.



Amia

I scored 69.



Phil

I scored 57.

How many different scores could you make by throwing 2 beanbags in the hoops? Can you order the totals from the highest to the lowest value?



# Score Points **Answers**

Ben:  **$53 + 44 = 97$**

Aima:  **$44 + 25 = 69$**

Phil:  **$32 + 25 = 57$**

Some children may have chosen to place both beanbags in the same hoops so these possible scores are shown too:

**$55 + 55 = 110$**

**$55 + 53 = 108$**

**$53 + 53 = 106$**

**$55 + 44 = 99$**

**$53 + 44 = 97$**

**$44 + 44 = 88$**

**$55 + 32 = 87$**

**$53 + 32 = 85$**

**$55 + 25 = 80$**

**$53 + 25 = 78$**

**$44 + 32 = 76$**

**$44 + 25 = 69$**

**$32 + 32 = 64$**

**$32 + 25 = 57$**

**$25 + 25 = 50$**



**Ben**

$$25 + 22 = 47$$

**Amia**

$$36 + 23 = 59$$

**Phil**

$$45 + 34 = 79$$

$$51 + 26 = 77$$

$$63 + 34 = 97$$

**Phil is incorrect. He needs to remember to add the tens.**



$$24 + 22 = 46$$

**Amia is correct, however she has not used the most efficient method. It is more efficient to start on the greatest number then add the steps of ten and the ones carefully.**



**Ben's possible numbers:**

$$29 + 20$$

$$28 + 21$$

$$27 + 22$$

$$26 + 23$$

$$25 + 24$$

**Amia's possible numbers:**

$$35 + 14$$

$$36 + 13$$

$$37 + 12$$

$$38 + 11$$

$$39 + 10$$

**Phil's possible numbers:**

$$14 + 35$$

$$13 + 36$$

$$12 + 37$$

$$11 + 38$$

$$10 + 39$$

**Some more ways to make 49 by adding two 2-digit numbers:**

$$34 + 15$$

$$33 + 16$$

$$32 + 17$$

$$31 + 18$$

$$30 + 19$$