

Add Two 2-Digit Numbers, Crossing Ten

Adult Guidance with Question Prompts



Children build fluency adding two 2-digit numbers, crossing ten. They practise partitioning the numbers then adding the tens and ones. Children would benefit from using place value counters or other equipment representing tens and ones.

What do the counters in the tens column represent?

What do the counters in the ones column represent?

Can the counters help you add 20 and 20?

What is six add seven? Show me.

What do we do after we have added the tens and the ones? Show me.

What is the answer?

How can you partition 18 into the part-whole model? Show me.

How can you partition 17 into the part-whole model? Show me.

Now what do you need to do?

What do you do when you have add the tens and the ones?

What is the total?

Which method do you prefer? Can you explain why?

Use this method to solve the last calculations.

Can you show me using equipment?

Add Two 2-Digit Numbers, Crossing Ten.



Complete the calculations.

$27 + 26 = \square$

$20 + 20 = \square$

$6 + 7 = \square$

$\square + \square = \square$

Tens	Ones

$$\begin{array}{c} 18 \\ \swarrow \searrow \\ \square \quad \square \end{array} + \begin{array}{c} 17 \\ \swarrow \searrow \\ \square \quad \square \end{array} = \square$$

$\square + \square = \square$

$\square + \square = \square$

$\square + \square = \square$



Now pick your favourite method to complete the following:

$32 + 49 = \square$

$45 + 29 = \square$

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Children add two 2-digit numbers, crossing ten. They apply their reasoning skills to explain mistakes in representations and calculations. Children support their thinking with place value grids and/or part-whole models.

Has Anna represented the numbers in the place value grid correctly?

What should it be?

Does this affect the calculations?

What should they be? Prove it.

Has Felix partitioned the numbers correctly?

What mistake has he made?

How should they be partitioned?

Prove it with equipment.

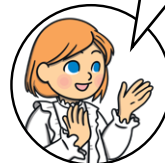
What should the answer be?

Show me.

Add Two 2-Digit Numbers, Crossing Ten.



I used a place value grid to add $26 + 45$.



Tens	Ones
10 10	1 1 1 1 1 1
10 10 10 10 10	1 1 1 1

$$26 + 45 = 80$$

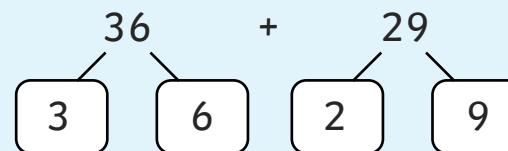
$$20 + 50 = 70$$

$$6 + 4 = 10$$

$$70 + 10 = 80$$

Spot and correct Anna's mistake.

I used a part-whole model to add $36 + 29$.



$$3 + 6 + 2 + 9 = 20$$

$$\text{so } 36 + 29 = 20$$

Is Felix right? Prove it.

Add Two 2-Digit Numbers, Crossing Ten

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Children add two 2-digit numbers, crossing ten. They apply their problem-solving skills to investigate a missing number challenge. Children may use place value counters, jottings and number facts to explore different possibilities. They use part-whole models or place value grids to organise and present their calculations.

What information do you have? What do you need to find out?

What can you do to work out the missing number?

How can you make sure that you find all of the possibilities?

What do you notice about the number pairs that you find?

Can you make a missing number challenge for a friend?

What will you hide, the tens or the ones?

Add Two 2-Digit Numbers, Crossing Ten.



We scored 64 points. How many ones counters did we win?



Use part-whole models or place value grids to find the missing numbers.
How many possibilities can you find?

Tens	Ones
10 10	?
10 10 10	?

$$\begin{array}{c} 2? \\ \diagdown \quad \diagup \\ \boxed{20} \quad \boxed{?} \end{array} + \begin{array}{c} 3? \\ \diagdown \quad \diagup \\ \boxed{30} \quad \boxed{?} \end{array} = 64$$

Make a missing number challenge like this for a friend to solve.



$$27 + 26 = 53$$

$$20 + 20 = 40$$

$$6 + 7 = 13$$

$$40 + 13 = 53$$

$$\begin{array}{c}
 18 \quad \quad \quad + \quad \quad 17 \quad \quad = \\
 \diagdown \quad \diagup \quad \quad \quad \diagdown \quad \diagup \\
 10 \quad 8 \quad \quad \quad 10 \quad 7
 \end{array}$$

$$35$$

$$10 + 10 = 20$$

$$8 + 7 = 15$$

$$20 + 15 = 35$$

$$32 + 49 = 81$$

$$45 + 29 = 74$$

Anna represented 45 incorrectly. It should have had 4 tens and 5 ones, not 5 tens and 4 ones. This will have made the rest of her calculations incorrect. They should have been:



$$20 + 40 = 60$$

$$6 + 5 = 11$$

$$60 + 11 = 71$$

Felix has partitioned the numbers incorrectly, forgetting the value of the tens digit. He should have done:

$$30 + 20 = 50$$

$$6 + 9 = 15$$

$$50 + 15 = 65$$

$$29 + 35$$

$$28 + 36$$

$$27 + 37$$

$$26 + 38$$

$$25 + 39$$

Children may notice the ones must total of 14.



High Score

To add two 2-digit numbers by adding the ones (crossing 10) and the tens.



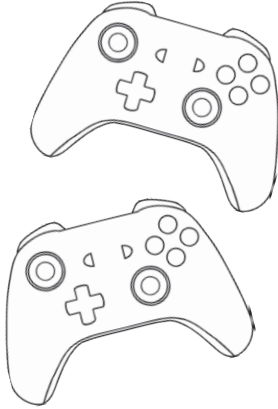
Add the scores to find the total.

$$16 + 15 = \square$$

$$10 + 10 = \square$$

$$6 + 5 = \square$$

$$\square + \square = \square$$



Tens	Ones		
10	1	1	1
	1	1	1
10	1	1	1
	1	1	

$$\begin{array}{c} 17 \\ \swarrow \quad \searrow \\ 10 \quad 7 \end{array} + \begin{array}{c} 16 \\ \swarrow \quad \searrow \\ 10 \quad 6 \end{array} = \square$$

$$10 + 10 = \square$$

$$7 + 6 = \square$$

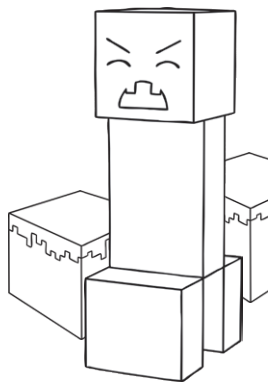
$$\square + \square = \square$$

$$18 + 25 = \square$$

Tens $\square + \square = \square$

Ones $\square + \square = \square$

Total $\square + \square = \square$



Tens	Ones			
10	1	1	1	1
	1	1	1	1
10	10			
	1			

$$\begin{array}{c} 27 \\ \swarrow \quad \searrow \\ 20 \quad 7 \end{array} + \begin{array}{c} 26 \\ \swarrow \quad \searrow \\ 20 \quad 6 \end{array} = \square$$

Tens $\square + \square = \square$

Ones $\square + \square = \square$

Total $\square + \square = \square$

High Score Answers

Add the scores to find the total.

$$16 + 15 = \boxed{31}$$

$$10 + 10 = \boxed{20}$$

$$6 + 5 = \boxed{11}$$

$$\boxed{20} + \boxed{11} = \boxed{31}$$

Tens	Ones		
(10)	(1)	(1)	(1)
	(1)	(1)	(1)
(10)	(1)	(1)	(1)
	(1)	(1)	

$$\begin{array}{c} 17 \\ \swarrow \searrow \\ \boxed{10} \quad \boxed{7} \end{array} + \begin{array}{c} 16 \\ \swarrow \searrow \\ \boxed{10} \quad \boxed{6} \end{array} = \boxed{33}$$

$$10 + 10 = \boxed{20}$$

$$7 + 6 = \boxed{13}$$

$$\boxed{20} + \boxed{13} = \boxed{33}$$

$$18 + 25 = \boxed{43}$$

$$\boxed{10} + \boxed{20} = \boxed{30}$$

$$\boxed{8} + \boxed{5} = \boxed{13}$$

$$\boxed{30} + \boxed{13} = \boxed{43}$$

Tens	Ones			
(10)	(1)	(1)	(1)	(1)
	(1)	(1)	(1)	(1)
(10) (10)	(1)	(1)	(1)	(1)
	(1)			

$$\begin{array}{c} 27 \\ \swarrow \searrow \\ \boxed{20} \quad \boxed{7} \end{array} + \begin{array}{c} 26 \\ \swarrow \searrow \\ \boxed{20} \quad \boxed{6} \end{array} = \boxed{53}$$

$$\boxed{20} + \boxed{20} = \boxed{40}$$

$$\boxed{7} + \boxed{6} = \boxed{13}$$

$$\boxed{40} + \boxed{13} = \boxed{53}$$

High Score

To add two 2-digit numbers by adding the ones (crossing 10) and the tens.



Add the scores to find the total.

Complete the place value grid and part-whole model.

$$28 + 15 = \square$$

Tens $\square + \square = \square$

Ones $\square + \square = \square$

Total $\square + \square = \square$



Tens	Ones
(10) (10)	(1) (1) (1) (1)
	(1) (1) (1) (1)
(10)	(1) (1) (1) (1)
	(1)

$$\begin{array}{c} 37 \\ \swarrow \quad \searrow \\ 30 \quad 7 \end{array} + \begin{array}{c} 26 \\ \swarrow \quad \searrow \\ 20 \quad 6 \end{array} = \square$$

Tens $\square + \square = \square$

Ones $\square + \square = \square$

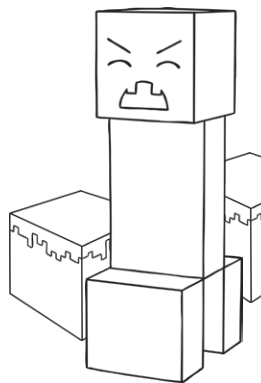
Total $\square + \square = \square$

$$18 + 35 = \square$$

Tens $\square + \square = \square$

Ones $\square + \square = \square$

Total $\square + \square = \square$



Tens	Ones

$$\begin{array}{c} 47 \\ \swarrow \quad \searrow \\ \square \quad \square \end{array} + \begin{array}{c} 25 \\ \swarrow \quad \searrow \\ \square \quad \square \end{array} = \square$$

Tens $\square + \square = \square$

Ones $\square + \square = \square$

Total $\square + \square = \square$

High Score Answers

Add the scores to find the total.

Complete the place value grid and part-whole model.

$$\begin{aligned} 28 + 15 &= \boxed{43} \\ \boxed{20} + \boxed{10} &= \boxed{30} \\ \boxed{8} + \boxed{5} &= \boxed{13} \\ \boxed{30} + \boxed{13} &= \boxed{43} \end{aligned}$$

Tens	Ones
$\textcircled{10}$ $\textcircled{10}$	$\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$
	$\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$
$\textcircled{10}$	$\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$
	$\textcircled{1}$

$$\begin{array}{c} 37 \\ \swarrow \quad \searrow \\ \boxed{30} \quad \boxed{7} \end{array} + \begin{array}{c} 26 \\ \swarrow \quad \searrow \\ \boxed{20} \quad \boxed{6} \end{array} = \boxed{63}$$

$$\begin{aligned} \boxed{30} + \boxed{20} &= \boxed{50} \\ \boxed{7} + \boxed{6} &= \boxed{13} \\ \boxed{50} + \boxed{13} &= \boxed{63} \end{aligned}$$

$$\begin{aligned} 18 + 35 &= \boxed{53} \\ \boxed{10} + \boxed{30} &= \boxed{40} \\ \boxed{8} + \boxed{5} &= \boxed{13} \\ \boxed{40} + \boxed{13} &= \boxed{53} \end{aligned}$$

Tens	Ones
$\textcircled{10}$	$\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$
	$\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$
$\textcircled{10}$ $\textcircled{10}$ $\textcircled{10}$	$\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$
	$\textcircled{1}$

$$\begin{array}{c} 47 \\ \swarrow \quad \searrow \\ \boxed{40} \quad \boxed{7} \end{array} + \begin{array}{c} 25 \\ \swarrow \quad \searrow \\ \boxed{20} \quad \boxed{5} \end{array} = \boxed{72}$$

$$\begin{aligned} \boxed{40} + \boxed{20} &= \boxed{60} \\ \boxed{7} + \boxed{5} &= \boxed{12} \\ \boxed{60} + \boxed{12} &= \boxed{72} \end{aligned}$$

High Score

To add two 2-digit numbers by adding the ones (crossing 10) and the tens.



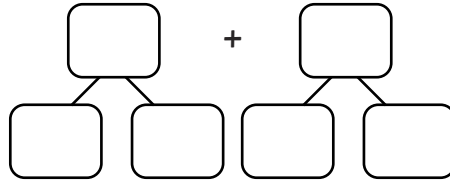
Add the scores to find the total. Use a place value grid or part-whole models to help.

$53 + 29 =$

Tens + =

Ones + =

Total + =

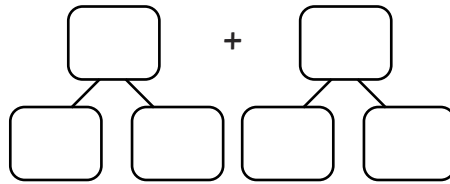


$61 + 29 =$

Tens + =

Ones + =

Total + =



$19 + 49 =$

$32 + 27 =$

High Score **Answers**

Add the scores to find the total. Use a place value grid or part-whole models to help.

$$53 + 29 = \mathbf{82}$$

$$61 + 29 = \mathbf{90}$$

$$19 + 49 = \mathbf{68}$$

$$32 + 27 = \mathbf{53}$$

High Score

To add two 2-digit numbers by adding the ones (crossing 10) and the tens.



Add the scores to find the total.

$$16 + 15 = \square$$

$$10 + 10 = \square$$

$$6 + 5 = \square$$

$$\square + \square = \square$$



Tens	Ones		
10	1	1	1
	1	1	1
10	1	1	1
	1	1	

$$\begin{array}{c} 17 \\ \swarrow \quad \searrow \\ 10 \quad 7 \end{array} + \begin{array}{c} 16 \\ \swarrow \quad \searrow \\ 10 \quad 6 \end{array} = \square$$

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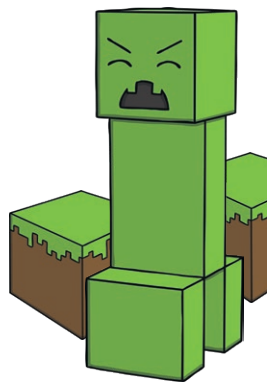
$$\square + \square = \square$$

$$18 + 25 = \square$$

Tens $\square + \square = \square$

Ones $\square + \square = \square$

Total $\square + \square = \square$



Tens	Ones			
10	1	1	1	1
	1	1	1	1
10	10	1	1	1
	1			

$$\begin{array}{c} 27 \\ \swarrow \quad \searrow \\ 20 \quad 7 \end{array} + \begin{array}{c} 26 \\ \swarrow \quad \searrow \\ 20 \quad 6 \end{array} = \square$$

Tens $\square + \square = \square$

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	(1) (1) (1)
(10)	(1) (1) (1)
	(1) (1)

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Tens	Ones
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High Score

To add two 2-digit numbers by adding the ones (crossing 10) and the tens.



Add the scores to find the total.

Complete the place value grid and part-whole model.

$$28 + 15 = \square$$

Tens $\square + \square = \square$

Ones $\square + \square = \square$

Total $\square + \square = \square$



Tens	Ones
10 10	1 1 1 1
	1 1 1 1
10	1 1 1 1
	1

$$\begin{array}{c} 37 \\ \swarrow \searrow \\ 30 \quad 7 \end{array} + \begin{array}{c} 26 \\ \swarrow \searrow \\ 20 \quad 6 \end{array} = \square$$

Tens $\square + \square = \square$

Ones $\square + \square = \square$

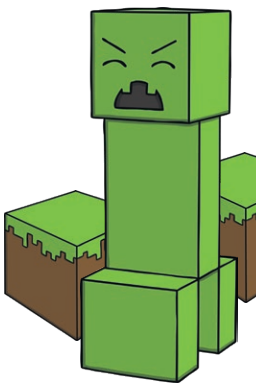
Total $\square + \square = \square$

$$18 + 35 = \square$$

Tens $\square + \square = \square$

Ones $\square + \square = \square$

Total $\square + \square = \square$



Tens	Ones

$$\begin{array}{c} 47 \\ \swarrow \searrow \\ \square \quad \square \end{array} + \begin{array}{c} 25 \\ \swarrow \searrow \\ \square \quad \square \end{array} = \square$$

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$\textcircled{10}$	$\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$
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	$\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$
$\textcircled{10}$ $\textcircled{10}$ $\textcircled{10}$	$\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$ $\textcircled{1}$
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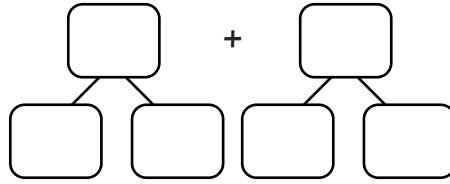
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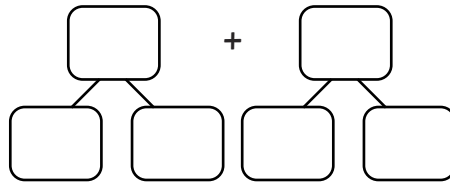


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